2009. The Journal of Arachnology 37:15–38

On the Mediterranean species of Trachelinae (Araneae, Corinnidae) with a revision of *Trachelas* L. Koch 1872 on the Iberian Peninsula

Jan Bosselaers[1], **Carmen Urones**[2], **José Antonio Barrientos**[3] and **Juan M. Alberdi**[4]: [1]Dochterland, R. Novarumlaan 2, B-2340 Beerse, Belgium. E-mail: hortipes@dochterland.org; [2]Departamento de Didáctica Matemática y Ciencias, Facultad Educación, Universidad de Salamanca, E-37008 Salamanca, Spain; [3]Departamento Biología Animal, Universitat Autonoma de Barcelona, Bellaterra, Barcelona, Spain; [4]Baleazaleak 14 3.B, E-20011 Donostia, Spain

Abstract. The genus *Trachelas* from the Iberian Peninsula is revised. A new species, *Trachelas ibericus* from Spain, is described from both sexes, and the female of *T. validus* Simon 1884, an Iberian endemic, is described for the first time. Data are presented for the occurrence of *T. canariensis* Wunderlich 1987 and *T. macrochelis* Wunderlich 1992, formerly considered Canarian endemics, on the Iberian Peninsula. *Trachelas praestans* (O. Pickard-Cambridge 1911) is synonymized with *Creugas gulosus* Thorell 1878. *Trachelas purus* Kritscher 1969 is synonymized with *T. rayi* Simon 1878, and *T. flavipes* L. Koch 1882 with *T. maculatus* Thorell 1875. A diagnosis, descriptions, illustrations, distribution data, and a key are presented for the eight presently known *Trachelas* species of the Mediterranean region. In addition, an update is given on the presence of *Cetonana laticeps* (Canestrini 1868) in Spain.

Resumen. En este estudio se hace una revisión del género *Trachelas* en la Península ibérica. Se describe *Trachelas ibericus*, con ambos sexos de España; se describe por primera vez la hembra de *T. validus* Simon 1884, endemismo ibérico. Se presentan datos sobre la presencia de *T. canariensis* Wunderlich 1987 y *T. macrochelis* Wunderlich 1992, especies consideradas antes como endemismos canarios, en la peninsula ibérica. Se sinonimiza *T. praestans* (O. Pickard-Cambridge 1911) con *Creugas gulosus* Thorell 1878. Se sinonimiza *T. purus* Kritscher 1969 con *T. rayi* Simon 1878, así como *T. flavipes* L. Koch 1882 con *T. maculatus* Thorell 1875. Una diagnosis, descripciones, ilustraciones, datos de distribución, y una clave de las ocho especies mediterráneas de *Trachelas* conocidas hasta ahora son aportados. Además se aportan datos que clarifican la presencia de *Cetonana laticeps* (Canestrini 1868) en España.

Keywords: *Cetonana*, taxonomy, revision, faunistics, *ibericus*

Trachelas was first mentioned by L. Koch (1866) as a genus in his Drassidae. As Koch did not describe a type species at the time, *Trachelas* remained a *nomen nudum* until 1872 when L. Koch described *T. minor* in O. Pickard-Cambridge (1872).

Simon (1897) attributed *Trachelas* to Clubionidae, in the group Tracheleae of the subfamily Corinninae. This taxonomic entity was created by Karsch (1880) as the subfamily Corinnidae of his family Drassoidae. Petrunkevitch (1928) and Roewer (1955) both follow Simon's assignment of *Trachelas* to Clubionidae: Corinninae. Corinninae was subsequently raised to family rank by Lehtinen (1967).

The morphology as well as the distribution of the four *Trachelas* species cited from the Iberian Peninsula (Cardoso 2004, 2007; Morano 2005) are poorly known. The type species *Trachelas minor* O. Pickard-Cambridge 1872 as well as *T. rayi* Simon 1878 were described for the last time by Simon (1932). The male palpal tibia of *T. rayi* has also been illustrated by Wunderlich (1992). Only the male has been described for *T. validus* Simon 1884, although the type series also contains a female (see below). *Trachelas. flavipes* L. Koch 1882 is only known from a female specimen from the Balearic Islands on which the original description was based (Koch 1882). That specimen has been lost. *Trachelas amabilis* Simon 1878, from Algeria and Tunisia (Simon 1878b; Bonnet 1959), had been cited from Portugal as doubtful (Cardoso 2000; Morano 2005), but was later excluded from the Portuguese catalog (Cardoso 2004) for being alien to the fauna of that country. Neither *T. amabilis* nor *T. validus* have ever been illustrated.

After studying abundant Iberian material of *Trachelas*, we describe both sexes of a new species, *T. ibericus* sp. n., in the present work, as well as, for the first time, the female of *T. validus*. *Trachelas canariensis* Wunderlich 1987 and *T. macrochelis* Wunderlich 1992, formerly believed to be Macaronesian endemics, are reported from the Iberian mainland and North Africa. Both species, as well as *T. minor*, *T. rayi*, and *T. amabilis*, are redescribed. *Trachelas purus* Kritscher 1969 is synonymized with *T. rayi* and *T. flavipes* with *T. maculatus* Thorell 1875. An identification key for adults of the eight species discussed is also presented. Upon revising this tracheline material, an update is given on the presence of *Cetonana laticeps* (Canestrini 1868), type species of the genus *Cetonana* and its only European representative.

METHODS

In total, 242 specimens were studied (62 ♂♂, 180 ♀♀), as described in detail below. The specimens are deposited in the following collections: Muséum national de Ciencias Naturales de Madrid (MNCN); Museum Nationale d'Histoire Naturelle de Paris (MNHN); Royal Belgian Institute of Natural Sciences, Brussels (RBINS); Royal Museum for Central Africa, Tervuren, Brussels (MRAC); Natur-Museum und Forschungs-Institut Senckenberg, Frankfurt a.M. (SMF); Museum of Natural History, Geneva (MHNG); Collection Christophe Hervé (CCH); Collection J. Bosselaers (CJB); Collection Rop Bosmans (CRB); Collection C. Urones, Universidad de Salamanca (CCU); Collection J.M. Alberdi (JMA); Collection J.A. Barrientos, Universidad Autónoma de Barcelona (JAB). Localities cited are grouped by country and province. Geographical coordinates, altitude above sea level, habitat, and capture mode are given when available.

Specimens were studied with Nikon and Euromex binocular microscopes and drawn by making use of an eyepiece grid. Vulvae were cleared in methyl salicylate and observed under a Wild M12 microscope equipped with a drawing tube. All measurements are in mm except when otherwise stated.

Genital terminology follows Bosselaers & Jocqué (2000).

Abbreviations: AER = anterior eye row; ALE = anterior lateral eyes; AME = anterior median eyes; CO = copulatory opening (entrance of ID); do = dorsal; FD = fertilisation duct; fe = femur; hc = hand capture; HT = holotype; ICS = intercoxal sclerites - intercoxal sclerites are six small triangular or elongated sclerites surrounding the sternum, their tips penetrating between the coxae of the legs - they may be free, or fused with the sternum (Bosselaers & Jocqué 2002:fig. 1K); ID = insemination duct; l = length; LOP = *lorum pediculi* - the lorum is a longitudinal sclerite covering the dorsal side of the petiolus - it may be single or composed of two consecutive or juxtaposed sclerites separated by a membrane (Simon 1892:4, figs. 9–14); LT = lectotype; MOQ = median ocular quandrangle; mt = metatarsus; pa = patella; PER = posterior eye row; pl = prolateral; PLE = posterior lateral eyes; PCT = precoxal triangles - precoxal triangles are small triangular sclerites surrounding the sternum, their tips facing the bases of the coxae (Penniman 1985:16) - they may be free, or fused with the sternum (Bosselaers & Jocqué 2002:fig. 1K); PLB = pleural bars - pleural bars are narrow, horizontal sclerites between coxae and carapace, one above each coxa ("pièces épimériennes" of Simon (1892:11, fig. 29)) - they may be fused with each other (Bosselaers & Jocqué 2002:fig. 1P), with intercoxal sclerites, and/or with the carapace; PME = posterior median eyes; PSP = *plagula sternalis postica* - the plagula is a triangular or ribbon-shaped sclerite situated on the ventral side of the petiolus - it may be fused with the sternum (Simon 1892:5, figs. 15–18; Ledoux & Canard 1991:figs. 13,14); pt = pitfall trap; PT = paratype; PTA = prolateral tibial apophysis; rl = retrolateral; RPA = retrolateral patellar apophysis of male palp; RTA = retrolateral tibial apophysis of male palp; sl = sifting litter; sn = sweep net; st = suction trap; ST1 = spermatheca 1 (connected to FD); ST2 = spermatheca 2, an additional sclerotized hollow receptacle, presumably used for sperm storage (von Engelhardt 1910:38); ta = tarsus; ti = tibia, ve = ventral; w = width.

TAXONOMY

Family Corinnidae Karsch 1880

Diagnosis.—A group of generally small to medium-sized, entelegyne, ecribellate, eight-eyed spiders having tarsi armed with two claws and claw tufts. Corinnidae are further characterized by closely adjacent conical anterior spinnerets having a short, rounded and poorly differentiated apical segment. Female posterior median spinnerets have either three large cylindrical gland spigots in a triangle or, in the subfamily Trachelinae, four to five cylindrical gland spigots in two rows (Bosselaers & Jocqué 2002; Jocqué & Dippenaar-Schoeman 2006); female posterior lateral spinnerets have two large cylindrical gland spigots. The bulbus of the male palp usually lacks a median apophysis and the male abdomen has a strong tendency towards sclerotization.

Remarks.—Corinnidae, formerly subfamily Corinninae of "Clubionidae sensu lato" (Petrunkevich 1928; Simon 1897) is generally considered close to Liocranidae (Coddington & Levi 1991; Deeleman-Reinhold 2001). Corinnidae is represented by three subfamilies in the Iberian Peninsula: Castianerinae, Phrurolithinae, and Trachelinae. Trachelinae, encompassing the genera *Cetonana* Strand 1929 and *Trachelas* in the region under study, can be distinguished from other Corinnidae by a strong reduction in the number of normal leg spines (resulting in complete absence in most genera), the presence, at least in males, of blunt ventral leg cusps on the last three apical segments of the anterior legs (Platnick & Shadab 1974a), and female posterior median spinnerets having four to five cylindrical gland spigots in two rows (Bosselaers & Jocqué 2002; Jocqué & Dippenaar-Schoeman 2006). Trachelinae presently encompass eight genera: *Cetonana, Meriola* Banks 1895, *Paccius* Simon 1898, *Spinotrachelas* Haddad 2006, *Thysanina* Simon 1910, *Trachelas, Trachelopachys* Simon 1897, and *Utivarachna* Kishida 1940. Three additional genera have recently been discovered (Haddad & Lyle, in press). The genera *Austrachelas* Lawrence 1938, *Brachyphaea* Simon 1895, *Lessertina* Lawrence 1942, and *Pronophaea* Simon 1897 have erroneously been attributed to Trachelinae in recent publications (Bosselaers & Jocqué 2002; Dippenaar-Schoeman & Jocqué 1997), but belong elsewhere (Chami-Kranon et al. 2007; Haddad 2006; Lyle & Haddad 2006). The placing of Traehelinae in Corinnidae has been disputed: Lehtinen (1967) makes no mention of Trachelinae under his Corinnidae and in a later publication (Lehtinen 1996:402) refers to family Trachelidae, without further justification. Platnick (1975) already states that "It seems unlikely then that either the castianeirines or the corinnines are the sister group of the trachelines." Jocqué & Dippenaar-Schoeman (2006) consider the inclusion of Trachelinae in Corinnidae debatable and Deeleman-Reinhold (2001:255) states "A familial status for the Castianeirinae and the Trachelinae ... would be more satisfactory."

Genus *Trachelas* L. Koch 1872

Type species.—*Trachelas minor* O. Pickard-Cambridge 1872, by original designation.

Diagnosis.—Apart from the three characters described above for the subfamily, *Trachelas* species (Simon 1878a; Platnick & Shadab 1974a, b) are characterized by a convex bulging carapace, eye rows, especially the posterior one, recurved as seen from above, eyes subequal in size or with the subrectangular posterior median eyes slightly larger than the others, anterior legs more robust than posterior legs, especially in males; a male palp with a narrow cymbium and a simple RTA and/or RPA, globose, often almost spherical female spermathecae, and insemination ducts widened and sclerotized towards the copulatory opening.

Description.—The species-rich and widely distributed genus *Trachelas* is heterogeneous and most probably not monophyletic (see remarks below). As a result, it proves impossible to give a detailed generic description which applies to all species. Instead, a generic description applicable to the Mediterranean species is given here.

Small (2–5 mm) spiders. Carapace convex, yellow-brown, reddish brown or chestnut brown, smooth to minutely warty

or rugose. A small but distinct fovea in posterior part of carapace. Chilum single and subtriangular, or absent. PLB a very narrow strip above each coxa, connected with posterior end to blunt subtriangular sclerites situated between coxae. PLB I fused to PLB II, and PLB III fused to PLB IV, resulting in two consecutive long strips.

Eyes in two transverse rows, both procurved in frontal view and recurved in dorsal view. PME subrectangular, with a pearly lustre, others transparent and shining, AME darker than others. Dark retina of AME restricted to median two thirds. AME circular, ALE and PLE oval. All eyes ringed with black. Eyes either subequal, or median eyes slightly larger than laterals. Eyes in PER more widely spaced than in AER. MOQ wider posteriorly, w > 1. Chelicerae colored as carapace, rugose. Cheliceral boss pronounced in most species. Promarginal and retromarginal cheliceral rim each with two or three teeth.

Sternum slightly longer than wide, rounded and shield shaped. ICS and PCT fused to sternum. ICS rather blunt, especially the posterior one (between coxae III and IV). PCT sharply pointed, triangular. LOP hourglass-shaped, consisting of two trapezoidal sclerites connected by a flexible membrane. PSP surrounding ventral half of petiolus, ribbon-shaped or subtriangular. Labium subtriangular, with a thickened anterior rim. Maxillae widened and rounded anteriorly, flat or with a shallow oblique transversal depression.

Legs spineless, but leg cusps are present on ti, mt, and ta of legs I and II in males of some species. Retrocoxal hymen (Raven 1998; Bosselaers & Jocqué 2002:244) absent, trochanters not notched. Tarsi with two claws and claw tufts. Dark ventral terminal preening brush (Bosselaers & Jocqué 2002:246) present on mt III and IV. Leg formula 4,1,2,3 in females, 4,1,2,3 or 1,4,2,3 or 1,2,4,3 in males.

Abdomen oval, longer than wide, brown or grey with a pattern of patches and chevrons, in males often with a dorsal scutum.

Male palp with a narrow cymbium and either a femur with a ventral terminal groove as well as a small, pointed RPA, or a simple RTA. Bulbus oval to pear-shaped, with an anteriorly inserted embolus.

Epigynum poorly sclerotized and semi-transparent in most species, often with an anterior hood and centrally or anteriorly located COs. Vulva with relatively large, anterior ST2 and posterior, thick-walled ST1 consisting of one or two lumina. IDs relatively simple.

Remarks.—*Trachelas* has a worldwide distribution and 88 species are attributed to the genus (Platnick 2008). In addition to those, one new Asian species (Kim & Lee 2008) and several dozen new African species (Lyle 2008) have recently been discovered. However, the genus as presently delimited is far from homogeneous. As Platnick (2000) correctly states, the genus serves as a "wastebasket" group for relatively unmodified trachelines. Recent studies have moved 27 species to *Meriola, Trachelopachys*, or *Utivarachna* (Platnick 2008). Several authors doubt whether the American species remaining in *Trachelas* are congeneric with the type species *T. minor* (Platnick & Ewing 1995; Grismado 2004). Personal observations demonstrated, for example, that New World *Trachelas* species from the *bicolor* group (Platnick & Shadab 1974b), like *T. barroanus* Chamberlin 1925 and *T. triangulus* Platnick & Shadab 1974, have a posteriorly wedge-shaped carapace, as in *Utivarachna* (Deeleman-Reinhold 2001; Chami-Kranon et al. 2007), while all Old World *Trachelas*, as well as some New World species (e.g., the *tranquillus* group) have a posteriorly truncated carapace. On top of that, the boundaries between *Trachelas* as presently delimited and *Cetonana* are no longer obvious. Although some differences between the type species *C. laticeps* and the Mediterranean *Trachelas* species remain valid (see below), a number of general differentiating characters which Simon lists in his keys and diagnosis (1897:184–185, 1932:957) have since proven incorrect: legs I and II of some *Trachelas* species (*T. minor*, *T. macrochelis*) are not more robust as compared to legs III and IV than those of *Cetonana laticeps*; the fovea is not longer (in both genera 1/10 of length of carapace) or situated more posteriorly on carapace (overlap between both genera). The rather more complex genitalia of *C. laticeps* are nevertheless similar to those of some newly described African *Trachelas* (Lyle 2008), as well as to those of a few *Meriola* species. Similar to *Trachelas*, *Cetonana* is not homogeneous: the African species, which have some normal leg spines, most probably are not congeneric with *Cetonana laticeps* (Haddad, pers. comm.), and the same can be assumed for the three remaining neotropical *Cetonana* (Platnick, pers. comm.) as well as for the Oriental *C. orientalis* (Schenkel 1936), whose females have no leg cusps and a vulvar morphology largely different from that of the type species (Paik 1991). However, a rearrangement of both genera will only be possible after a thorough revision, including a cladistic analysis. This task falls outside the scope of the present study.

As far as Palearctic *Trachelas* are concerned, the following species are listed to date (Platnick 2008): six Asian species (*T. acuminus* (Zhu & An 1988), *T. alticolus* Hu 2001, *T. coreanus* Paik 1991, *T. costatus* O. Pickard-Cambridge 1885, *T. japonicus* Bösenberg & Strand 1906 and *T. sinensis* Chen, Peng & Zhao 1995) three Macaronesian species (*T. canariensis*, *T. macrochelis*, and *T. uniaculeatus* Schmidt 1956) and seven Mediterranean species (*T. anabilis*, *T. flavipes*, *T. maculatus*, *T. minor*, *T. purus*, *T. rayi*, and *T. validus*). In addition to these, Platnick (2008) lists *T. praestans* (O. Pickard- Cambridge 1911), a species introduced in Britain and only known from two male specimens captured in 1911 in a greenhouse at Kew Gardens. The species was described as *Corinna praestans* by O. Pickard-Cambridge (1911), and surprisingly transferred to the genus *Trachelas* by Simon (1932). Comparison of O. Pickard-Cambridge's (1911) excellent illustrations with Bonaldo (2000) clearly shows that these specimens belong to *Creugas gulosus* Thorell 1878, and not to *Trachelas* (Bonaldo, pers. comm.). The likewise introduced species *Trachelas uniaculeatus* is of uncertain origins (Wunderlich 1987, 1992) and poorly illustrated (Schmidt 1990; Wunderlich 1992); it will not be further discussed here.

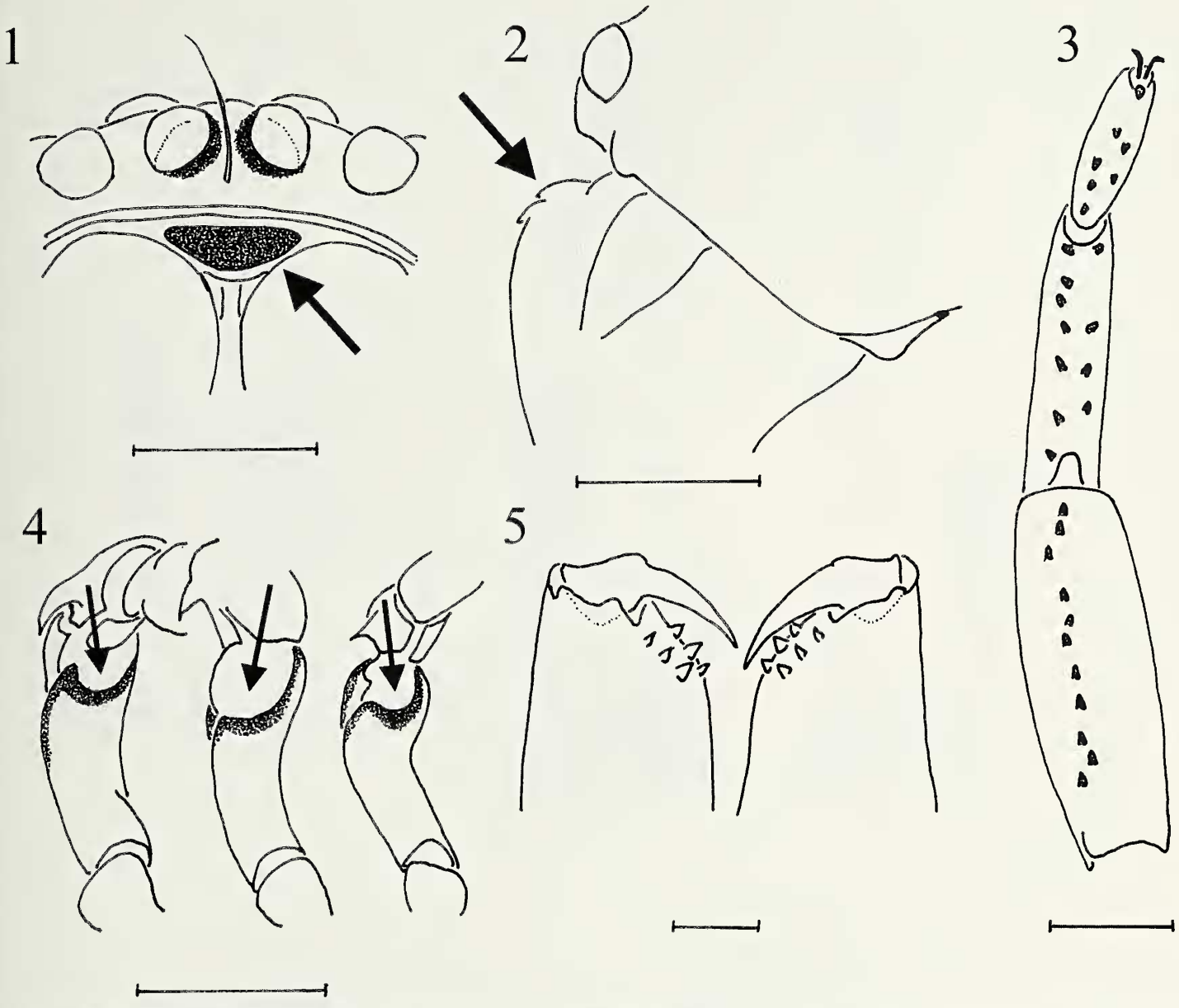
KEY TO IBERIAN *TRACHELAS* SPECIES

1. Males 2
   Females 8
2. Chilum (small sclerite between base of chelicerae and clypeus, Jocqué 1991:11) absent, median eyes further removed from each other than from laterals (Figs. 9, 16, 38), base of chelicerae without pronounced boss, chelicerae with two teeth on both pro- and retromarginal rim, male palpal femur with ventral terminal groove (Fig. 4, arrows; Bosselaers & Jocqué 2002:249), male palpal patella with pointed retrolateral apophysis (Figs. 10, 17, 39), no RTA 3
   Chilum single and sclerotized (Fig. 1), eyes equidistant or medians closer to each other than to laterals, chelicerae with pronounced basal boss (Fig. 2, arrow), promarginal cheliceral rim with three teeth, no palpal femoral groove and no apophysis on male palpal patella, RTA present 4
3. Body length 2 mm or less, leg IV longer than leg I, palpal ventral femoral groove small (Fig. 4, right), embolus short, less than 1/4 of length of bulbus (Fig. 10) ..... *minor*
   Body length 2.5 mm or more, leg I stout and longer than leg IV, palpal ventral femoral groove deep and conspicuous (Fig. 4, left), embolus long, 1/2 of length of bulbus or more (Figs. 17) ..... *canariensis*
4. No leg cusps present, cephalic part of carapace very wide (Figs. 22, 28), 4/5 of carapace width or more, leg II shorter than leg IV 5
   Leg cusps present on at least ti and mt of leg I (Fig. 3), cephalic part of carapace 3/4 of carapace width or less, legs I and II stout, longer than leg IV 6
5. Leg I stout, longer than leg IV, RTA bifid, with blunt tips (Fig. 24) ..... *rayi*
   Leg IV longer than leg I, RTA single, very short and blunt (Figs. 29, 30) ..... *macrochelis*
6. RTA long and pointed, base of tegulum rounded (Fig. 44) 7
   RTA minute and pointed, tegulum with protruding basal bump (Fig. 52) ..... *ibericus*
7. Retromarginal cheliceral rim with two teeth, abdomen without dorsal scutum, RTA more than 4 times as long as wide *maculatus*
   Retromarginal cheliceral rim with three teeth, abdomen with dorsal scutum (Fig. 42), RTA less than 3 times as long as wide (Fig. 44) ..... *validus*
8. Chilum absent, median eyes further removed from each other than from laterals (Figs. 12, 19), base of chelicerae without pronounced boss, chelicerae with two teeth on both pro- and retromarginal rim, no epigynal hood, CO anterior, ST2 spherical (Figs. 15, 21) 9
   Chilum single and sclerotized, eyes equidistant or medians closer to each other than to laterals, chelicerae with pronounced basal boss, promarginal cheliceral rim with three teeth, epigynal hood present (Fig. 32), CO median, ST2 piriform (Fig. 27) 10
9. Body length 2.5 mm or less, first stretch of ID circular (Fig. 15) ..... *minor*
   Body length 2.5 mm or more, first stretch of ID 8-shaped (Fig. 21) ..... *canariensis*
10. Retromarginal cheliceral rim with two teeth, epigynal hood wide (Figs. 25, 32, 35, 40), cephalic part of carapace rather narrow, 2/3 of carapace width 11
    Retromarginal cheliceral rim with three teeth (Fig. 5), epigynal hood narrow and subtriangular (Figs. 45, 54), cephalic part of carapace wide, 3/4 of carapace width 14
11. Epigynal hood medially situated in epigynum, posterior to anterior rim of piriform ST2 (Figs. 26, 32, 36). ST1 dumb-bell-shaped, consisting of two globular, interconnected lumina (Fig. 27) 12
    Epigynal hood anteriorly situated in epigynum, anterior to piriform ST2 (Fig. 40). ST1 sausage-shaped ..... *maculatus*
12. Epigynal hood subrectangular or trapezoidal (Figs. 25, 26) ..... *rayi*
    Epigynal hood curved, arc-shaped (Figs. 32, 35, 36) 13
13. Body size 3.7 mm or less, epigynal hood curved at edges (Fig. 32), lumina of ST1 interconnected by a solenoidally coiled canal (Fig. 33) ..... *macrochelis*
    Body size 3.8 mm or more, epigynal hood crescent-shaped with straight tips (Figs. 35, 36), lumina of ST1 interconnected by a straight canal (Fig. 37) ..... *amabilis*
14. Body size 4 mm or less, epigynum strongly sclerotized with longitudinal median crest, epigynal hood inconspicuous (Figs. 53, 54), ST2 thin-walled, with long stalk (Fig. 55) ..... *ibericus*
    Body size 4.5 mm or more, epigynum weakly sclerotized and semi-transparent, epigynal hood well-defined, narrow and subtriangular (Figs. 45, 46), ST2 thick-walled, with short stalk (Fig. 47) ..... *validus*

Trachelas minor O. Pickard-Cambridge 1872
Figs. 4, 9–15

Trachelas minor O. Pickard-Cambridge 1872:256, pl. 16, fig. 41; Simon 1878a:283; Simon 1897:184, fig. 178; Simon 1932:958, 977, figs. 1498–1499.

Material examined.—SPAIN: *Valencia*, Carlet (39°12′30″N, 0°35′10″W), Orange grove, 160 m, st, 9 September 1999, 1♂ (JAB); 3 November 1999, 1♀ (JAB); 13 April 2000, 1♀ (JAB); Godella (39°31′1″N, 0°24′0″W), Orange grove, 20 m, st, 4 September 2000, 1♂ (JAB); 20 September 2000, 1♂ (JAB); 14 November 2000, 1♂ (JAB); Riola vell (39°10′16″N, 0°20′45″W), Orange grove, 10 m, st, 31 October 2000, 1♀ (JAB); Cheste Hernandina (39°30′15″N, 0°43′25″W), Clementine grove, 270 m, st, 8 September 1999, 1♂ (JAB); 22 September 1999, 1♂ (JAB); 5 October 1999, 1♂, 3♀ (JAB); 10 November 1999, 1♀ (JAB); 26 November 1999, 1♀ (JAB); 14 December 1999, 1♀ (JAB); 4 May 2000, 1♀ (JAB); 6 July 2000, 2♀ (JAB); *Girona*, Mont Ras (41°54′22″N, 3°7′34″E), on bushes near stream bank in cork oak wood, 172 m, sn, 17

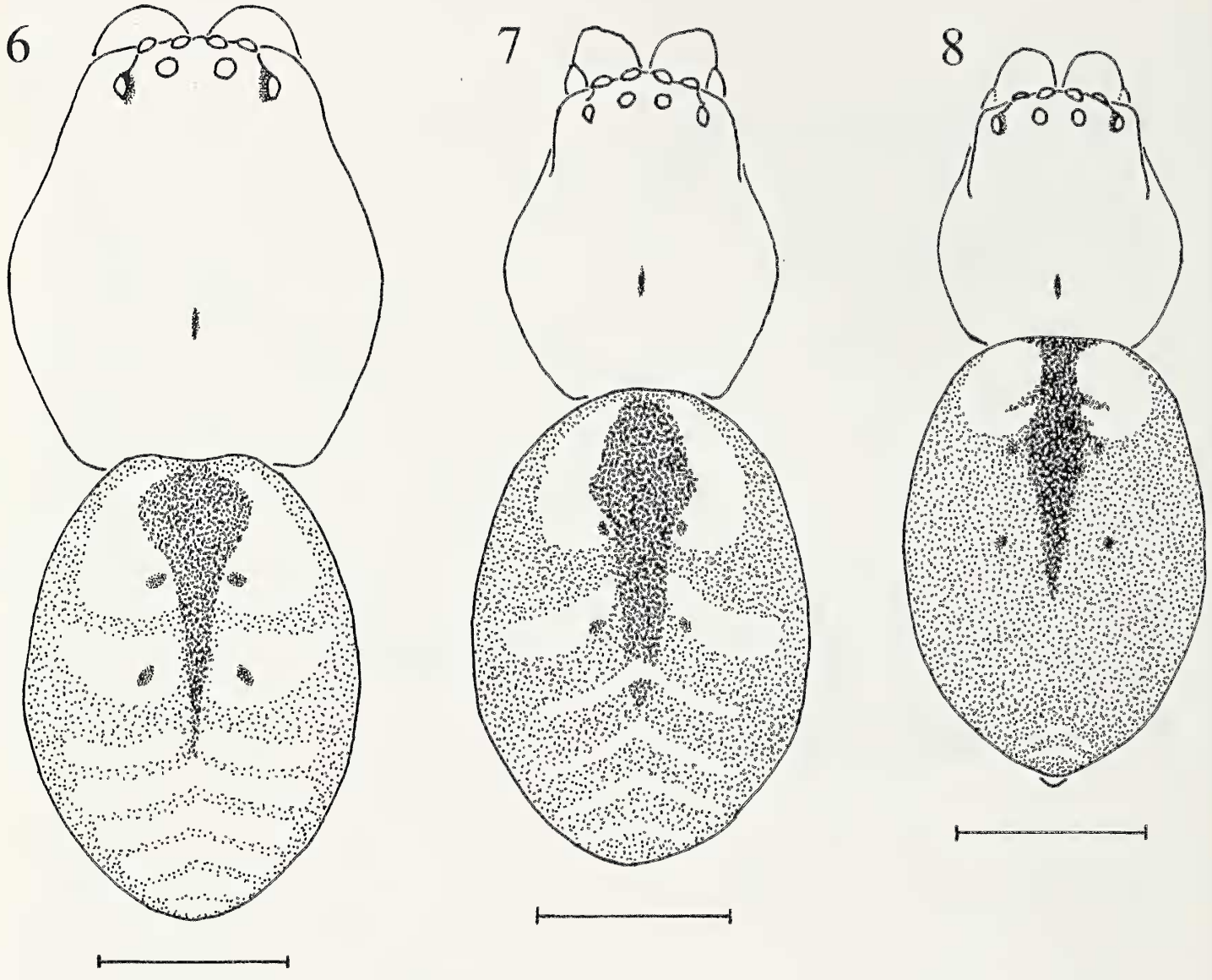


Figures 1–5.—*Trachelas* species. 1–3. *Trachelas ibericus* new species, male: 1. Chilum (arrow); 2. Cheliceral boss (arrow); 3. Ventral view of leg I, with leg cusps. 4. Male palpal terminal ventral femoral groove (arrows): left *Trachelas canariensis*, middle *Trachelas pusillus*, right *Trachelas minor*. 5. *Trachelas validus*: chelicerae with cheliceral tecth, retrolateral view. Scale bars: 1–4: 0.25 mm; 5: 0.5 mm.

April 2003, 1♀ (CJB). PORTUGAL: *Ribatejo*, Santarém, Paul do Boquilobo nature reserve, willow bush, 20 October 2002, P. Cardoso leg., 1♀ (CRB); *Algarve*, Barragem de Beliche, marshy area below dam, with *Typha* sp., 18 February 2006 1♀, (CRB). FRANCE: 2♀ (MNHN-22522); *Bouches-du-Rhône*, 13♂18♀ (MNHN-325); *Corsica*, menhirs de Pelaggiu between Tizzano and Sartenne, in bushes, July 1973, 1♀ (RBINS). GREECE: *Lesbos*, Polychnitos, Aghios Pavlos E., dense *Juncus* vegetation, pt, 10 October 2006, 1♀ (CRB); *Crete*, Chania, Georgiopoli, grassland near marsh, 20 m, 12 September 2004, 1♀ (CRB); Chania, Agia, marshy area around lake, 3 May 2002, 1♀ (CRB); Chania, Frangokastello, dunes with *Phragmites* pools, 10 m, 10 April 2002, 3♀ (CRB); Heraklion, Ano Zaros, Limni Potamou, stones near spring, 370 m, 15 September 2004, 1♂1♀ (CRB); Heraklion, Kasteli N., litter bordering irrigated garden near spring, 19 October 1998, 1♂4♀ (CRB). ALGERIA: *Skikda*, Ben Azouz, moist prairie, 150 m, 23 November 1989, 1♀ (CRB); *El Tarf*, Berrihane, on border between marsh and moist prairie, 30 m, 1 March 1990, 2♀ (CRB); El Kala, Western border of Tonga Lake, moist prairie, 10 m, 27 March 1988, 1♀ (CRB); *Alger*, El Harrach, I.N.A., rough grassland in park, 25 m, pt, 31 December 1985 - 1 June 1986, 1♂1♀ (CRB); *Boumerdes*, Sidi Daoud, Oued Sebaou, alongside Oued, under stones, 35 m, 4 December 1987, 1♀ (CRB).

Diagnosis.—*Trachelas minor* is closest to *T. canariensis*, from which it differs by its smaller size, by its rather short embolus of the male palp (Fig. 10), and by the small COs of the female vulva, connected to thin IDs which are anteriorly looped over 360° (Fig. 15).

Description.—*Male:* Total length 1.80–2.10. Carapace l 1.00, w 0.83, yellowish to reddish brown and densely covered with small, somewhat darker granules carrying diminutive, transparent hairs. Cephalic part narrow (2/3 of carapace width), rounded. Chilum absent.



Figures 6–8.—Dorsal view of *Trachelas* females 6. *T. validus* ; 7. *T. ibericus* ; 8. *T. rayi*. Scale bars: 1 mm.

PME slightly larger than AME, and these in turn larger than the subequal laterals. AME slightly more distant from each other than from laterals, separated by less than one diameter. PME separated by more than one diameter, more distant from each other than from laterals (Fig. 9). Clypeus height slightly larger than diameter of AME.

Chelicerae reddish brown, twice as long as wide, vertical or inclined backwards. Cheliceral boss not very pronounced. Minutely granulated and covered with diminutive, translucent hairs like the carapace. Promarginal and retromarginal cheliceral rim each with two small teeth.

Sternum minutely granulated to almost smooth, light yellow brown with a darker border. PCT weak and sharply pointed, ICS blunt. PSP ribbon-shaped, hemicircular. Labium slightly exceeding 2/3 of maxillae. Maxillae closely appressed to labium, with a shallow oblique transversal depression.

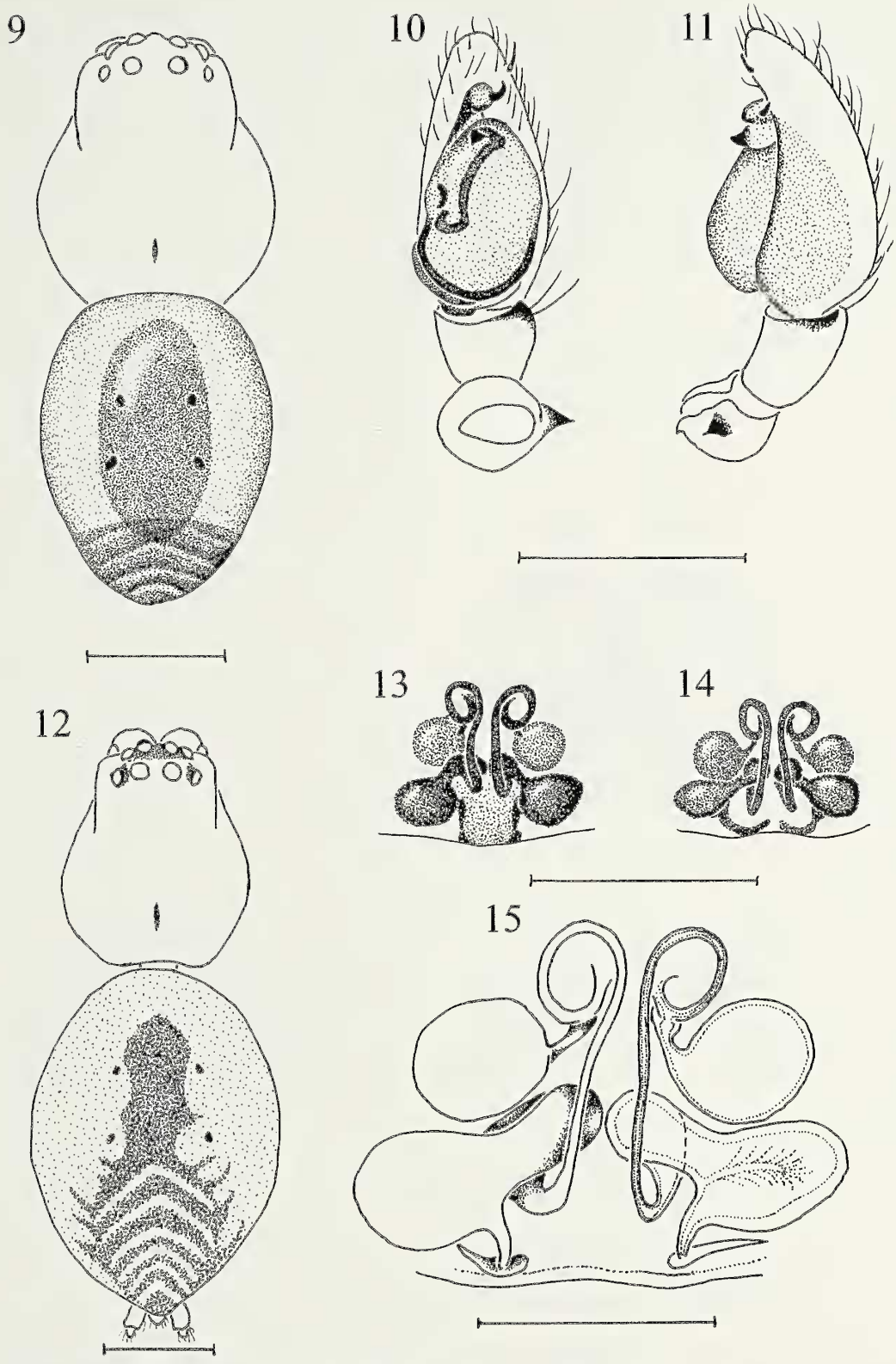
Legs spineless, covered with fine hairs, light yellowish brown, distal segments (pa, ti, mt, ta) somewhat darker than fe. Leg cusps absent. Weak, pale scopulae on all mt and ta and on distal half of ti I and II. Leg formula 4,1,2,3.

Leg measurements:

	fe	pa	ti	mt	ta	total
I	0.60	0.24	0.58	0.39	0.34	2.16
II	0.60	0.21	0.53	0.39	0.32	2.05
III	0.45	0.18	0.32	0.39	0.26	1.60
IV	0.66	0.21	0.55	0.58	0.29	2.29

Abdomen pale yellowish grey, with a chocolate brown posterior quarter with thin white chevrons. Narrow, orange-yellow, shining but ill defined dorsal scutum present in central area (Fig. 9).

Male palp with a small, straight and pointed RPA (Fig. 10), less conspicuous than in *T. canariensis* (Fig. 17). RTA absent. Palpal femur with a small, shallow ventral terminal groove (Fig. 4). Bulbus almost completely covering ventral side of cymbium, inflated and wider at base. Curved ducts partly discernable through transparent cuticle. Embolus small (contrary to *T. canariensis*), inserted distally on a small globular excrescence of tegulum, bent, with short, pointed end (Figs. 10, 11).



Figures 9–15.—*Trachelas minor*: 9. Male, do; 10. Left male palp, ve; 11. Left male palp, rl; 12. Female, do; 13, 14. Epigyna, ve; 15. Vulva, ve. Scale bars: 9, 12: 0.5 mm; 10, 11, 13, 14: 0.25 mm; 15: 0.1 mm.

Female: Total length 1.78–2.60. Carapace l 1.09, w 0.88, yellowish to reddish brown, texture as in male. Cephalic part narrow (2/3 of carapace width), rounded. Chilum absent.

Eyes as in male. Clypeus height equal to diameter of AME. Chelicerae, sternum, PSP, labium and maxillae as in male. Legs and leg formula as in male, leg cusps absent.

Leg measurements:

	fe	pa	ti	mt	ta	total
I	0.66	0.21	0.50	0.37	0.34	2.08
II	0.58	0.21	0.47	0.37	0.29	1.92
III	0.39	0.16	0.32	0.34	0.21	1.42
IV	0.66	0.21	0.58	0.55	0.29	2.29

Abdomen pale yellowish grey, with dark, chocolate brown, lancet-shaped longitudinal median band connected to a concolorous, dark posterior quarter with white chevrons (Fig. 12). Dorsal scutum absent.

Epigynum poorly sclerotized, spermathecae and anteriorly coiled insemination ducts visible through transparent cuticle (Figs. 13, 14). CO anterior.

Vulva (Fig. 15) shows two thin, longitudinally directed, anteriorly coiled IDs running close to the ventral epigynal surface. Immediately behind the anterior CO, a spherical ST2 is attached to the ID by a short duct. Posteriorly, each ID is connected to a piriform ST1. The ST1 is connected to a short, weakly sclerotized caudal FD.

Natural history.—Lives in the bases of grass tufts near rivers (Simon 1878a) and on vegetation, preferably trees and tall herbs (Denis 1933). Our data confirm both habitats; most specimens from Spain were collected on citrus trees with a suction trap; specimens from Greece and Algeria mostly in grassland. Adult females can continuously be found from April to December, while males were mostly captured in Autumn (September to November).

Distribution.—Entire Mediterranean region, eastwards to Azerbaijan, France as far north as Paris, West Africa (Platnick 2008). Existing data for the Iberian Peninsula are scarce. Spain was mentioned by Simon (1932) without precise loeation. One specimen was cited from Portugal (Cardoso 2004). Our data expand the species' range towards the East coast of Spain (Valencia, Girona).

Trachelas canariensis Wunderlich 1987
Figs. 4, 16–21

Trachelas canariensis Wunderlich 1987:238, fig. 636–639; Wunderlich 1992:474.

Types examined.—Paratypes of *Trachelas canariensis* Wunderlich 1987, 3 males, 6 females, Spain, La Gomera, Valle Gran Rey, 28°6'N, 17°16'W, among litter in gully, captured in July, J. Wunderlich leg. (SMF-37310).

Other material examined.—SPAIN: *Galicia*, Campalotra, 18 May 1993, P. Poot leg., 1♀ (CRB); *Almería*, Padules, under stones on dry slope, 9 April 1998, hc, 1♀ (CRB); San Juan de los Terreros, along rivulet near sea, 10 May 1997, pt, 1♀ (CRB). ALGERIA: *Batna*, Ras El Aioun, among grasses around pool in small poplar forest around fountain, 700 m, 16 October 1987, 5♀ (CRB); *Boumerdes*, Reghaia, marsh with Tamarisk at mouth of Oued Reghaia, 5 m, 3 May 1988, pt, 5♀ (CRB); *Aïn Temouchent*, between El Malah and El Ghella, among *Salicornia* and *Atriplex* near brackish water along Rio Salado, 80 m, 24 April 1984, 2♀ (CRB). MOROCCO: *Marrakech*, Oued Tensift near Marrakech, in and along river bed, 9 February 1996, 2♀ (CRB); *Taroudannt*, between Squirate and Taroudannt, litter in flooded *Citrus* yard, 15 February 2007, 1♂2♀ (CRB). TUNISIA: *Gabes*, Arram, among stones and herbs around irrigation canals, 16 December 1999, 1♂3♀ (CRB); Zarat, orchards in oasis, 19 December 2000, 3♂2♀ (CRB). KENYA: *Central Province*, Mt. Kenya, Sirimon track, montane rain forest, 2550 m, 25 July 1975, R. Bosmans leg., 1♀ (MRAC-161902). CONGO: *North Kivu*, Mt. Ruwenzori, North face, Kikura camp, 2000 m, July - August 1974, M. Lejeune leg., 1♀ (MRAC-154732); Kambaila, June 1973, M. Lejeune leg., 1♂1♀ (MRAC-145812); Sake, May 1937, J. Ghesquière leg. 1♂ (MRAC-174292). RWANDA: *Kigali*, Bugesera, borders of lake Tsohoa, September 1957, N. Leleup leg., 1♂ (MRAC-097139); *East Province*, Lulama, Lake Ihema, 6 June 1969, R. Kiss leg., 1♀ (MRAC-159694).

Diagnosis.—*Trachelas canariensis* is closest to *T. minor*, from which it differs by its larger size, by its long and twisted terminally inserted embolus of the male palp (Fig. 17), and by the large COs of the female vulva, connected to widened IDs which are anteriorly bent into an 8-shape (Fig. 21).

Description.—*Male:* Total length 2.42–2.97. Carapace 11.24, w 1.05, yellow ochre, covered with small warts carrying diminutive, transparent hairs. Cephalic part narrow (about 2/3 of carapace width), rounded. Chilum absent.

Eyes subequal, AME slightly more than half of their own diameter from each other, 1/4 of their diameter from ALE. PME separated by less than 1.5 of their diameter from each other, and by about 1/2 of their diameter from PLE (Fig. 16). Clypeus height equal to diameter of AME.

Chelicerae yellow brown, minutely granulated and covered with diminutive, translucent hairs, cheliceral boss not very pronounced. Promarginal and retromarginal cheliceral rim each with two small teeth.

Sternum almost smooth, light yellow brown with a darker border. PCT weak and sharply pointed, ICS blunt. PSP ribbon-shaped, hemicircular. Maxillae closely appressed to labium, with a shallow oblique transversal depression.

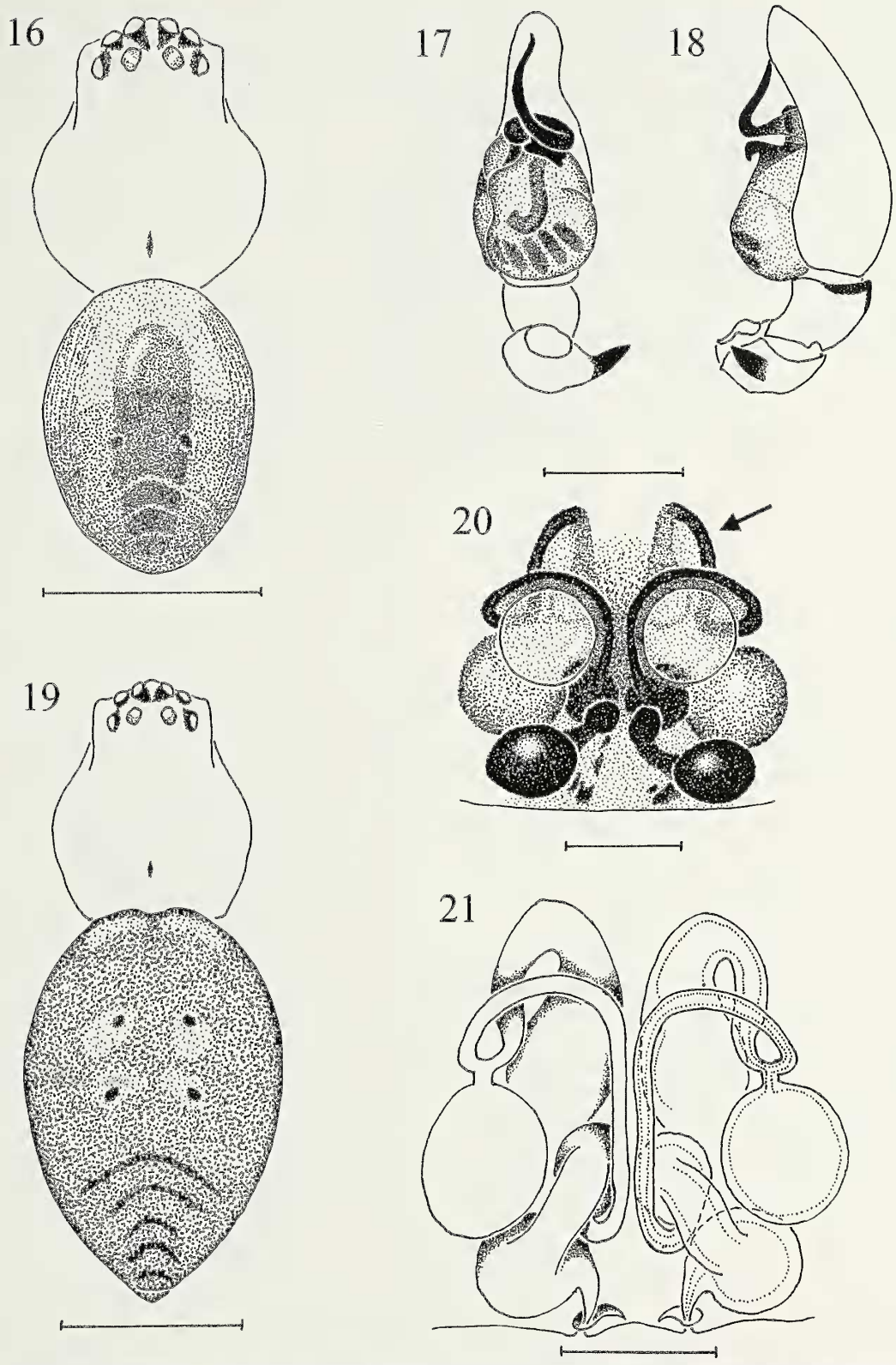
Legs spineless, covered with fine hairs, orange-yellow. Leg cusps absent. Pale scopulae on mt and ta I and II. Leg formula 1,4,2,3.

Leg measurements:

	fe	pa	ti	mt	ta	total
I	0.92	0.34	0.84	0.60	0.45	3.16
II	0.79	0.32	0.74	0.55	0.42	2.81
III	0.60	0.24	0.45	0.47	0.32	2.08
IV	0.79	0.26	0.74	0.74	0.37	2.89

Abdomen cream, posterior quarter darker, with a chocolate brown inverted triangular patch with thin pale transversal chevrons. Narrow, orange-yellow, shining but ill defined dorsal scutum present, which is as long as abdomen but variable in width from lanceolate to oval, covering 30 to 90% of abdomen (Fig. 16).

Male palp with curved and pointed RPA (Figs. 17, 18). RTA absent. Palpal femur with a deep ventral terminal groove (Fig. 4). Bulbus almost completely covering ventral side of



Figures 16–21.—*Trachelas canariensis*: 16. Male paratype, do; 17. Right male palp, ve (inverted); 18. Right male palp, rl (inverted); 19. Female paratype, do; 20. Epigynum, ve; 21. Vulva, ve. Scale bars: 16, 19: 1 mm; 17, 18: 0.25 mm; 20, 21: 0.1 mm.

cymbium, inflated and wider at base. Curved ducts partly discernable through transparent cuticle. Embolus long and coiled, inserted distally on tegulum (Figs. 17, 18).

Female: Total length 2.50–3.37. Carapace l 1.22, w 1.04, orange-yellow, texture as in male. Cephalic part narrow (slightly less than 2/3 of carapace width), rounded. Chilum absent.

PME slightly larger than AME, and these in turn larger than the subequal laterals. AME 2/3 diameter from each other, 1/3 diameter from ALE. PME 1.5 diameter from each other, 2/3 diameter from PLE (Fig. 19). Clypeus height 4/3 of diameter of AME.

Chelicerae, sternum, PSP, labium and maxillae as in male.

Legs as in male, leg cusps absent. Leg formula 4,1,2,3.

Leg measurements:

	fe	pa	ti	mt	ta	total
I	0.63	0.26	0.60	0.45	0.37	2.31
II	0.63	0.26	0.55	0.42	0.34	2.21
III	0.53	0.21	0.39	0.42	0.26	1.81
IV	0.95	0.24	0.63	0.66	0.32	2.79

Abdominal pattern variable in intensity: from cream with a dark, chocolate brown posterior zone (as in *T. minor*) to dark greyish-brown with four paler spots around sigilla and a number of thin, dark brown transversal chevrons posteriorly (Fig. 19). Dorsal scutum absent.

Epigynum poorly sclerotized, spermathecae and anteriorly bent insemination ducts visible through transparent cuticle (Fig. 20). Wide and sclerotized CO median-anterior.

Vulva (Fig. 21) shows two thin, longitudinally directed, anteriorly widened and bent IDs running close to the ventral epigynal surface. Immediately behind the wide and sclerotized median-anterior CO, a spherical ST2 is attached to the ID by a short duct. Posteriorly, each ID is connected to a piriform ST1. The ST1 is connected to a short, weakly sclerotized caudal FD.

Distribution.—Formerly considered a Canarian endemic (Platnick 2008; Wunderlich 1987, 1992) this species now proves to have an extremely large distribution area, having been collected in Rwanda, Congo, Kenya, Tunisia, Algeria, Morocco, the Canary Islands, and the Spanish mainland.

Remarks.—Comparison of the rather detailed drawings by Lessert (1923) and Wunderlich (1987) suggests that *T. canariensis* might be a junior synonym of *T. pusillus*. However, after studying the holotype of *T. pusillus* (Figs. 4, 38, 39) it is obvious that both species are different. The holotype of *T. pusillus* has horizontally protruding chelicerae not observed in *T. canariensis*, and the embolus of the male palp is considerably shorter than that of *T. canariensis* (Figs. 38, 39). A pale, ill-defined dorsal scutum covers the entire abdomen of the holotype specimen, and the left palp is missing. The tube containing the holotype of *T. pusillus* is accompanied by a second tube, containing Lessert's original label and a left male palp. This left male palp, surprisingly, turns out to be a palp of *T. canariensis*, not belonging to the holotype of *T. pusillus*.

Over its extended range, *T. canariensis* shows some variablity: the length of the retrolateral patellar apophysis varies to a certain extent, and the width of the anterior part of the epigynum, consisting of the first, forward-directed, and the second, backward-directed stretch of the ID continuously varies from narrow, with an almost straight second stretch (Fig. 20, arrow), to almost as wide as the ST2 region, with a semi-circular second stretch.

Trachelas rayi Simon 1878
Figs. 22–27

Trachelas rayi Simon 1878a:284, pl. 16, fig. 1; Simon 1932:959, figs. 1500, 1501; Wunderlich 1992:475, fig. 740.

Trachelas purus Kritscher 1969:306, fig. 11, NEW SYNONYMY.

Material examined.—SPAIN, FRANCE: (no locality specified, label only mentions "Gallia. Hisp."), 6♂43♀ (MNHN-1523). SPAIN: *Cádiz*, Tarifa, April 1991, P. Poot leg., 1♀ (CRB). FRANCE: *Var*, Caillan, 1♀ (MNHN-4.25.9.62, Collection Berland); Île de Port Cros, 1♀ (MNHN); *Alpes Maritimes*, Ste Agnès, 14 March 1914, 1♀ (MNHN-878); *Pyrenées Orientales*, Cerdagne, August 1978, L. Baert leg., 1♀ (CRB). ALGERIA: *Bouira*, Ighrem, under tamarisk along Oued Sahel river, 490 m, 10 June 1989, pt, 1♂1♀ (CRB).

Diagnosis.—*Trachelas rayi* is closest to *T. macrochelis*, from which it differs by its abdominal pattern consisting of a dull grey background featuring two large pale patches in the frontal half and a number of thin white chevrons in the posterior quarter, by its male palp with a blunt, bifid RTA and a very short, blunt apical embolus (Fig. 23), and by its epigynum which is bordered by a narrow, notched anterior hood (Figs. 25, 26).

Description.—*Male:* Total length 2.40–3.10. Carapace l 1.39, w 1.21, reddish brown to chestnut brown. Top almost smooth, sides covered with small warts carrying diminutive, transparent hairs. Cephalic part wide (4/5 of carapace width), rounded and bulging (Fig. 22). Chilum single, sclerotized, reddish brown.

Eyes subequal, AME separated by less than one diameter, closer to each other than to laterals. Eyes of PER widely and equidistantly spaced, separated by about two diameters (Fig. 22). Clypeus height slightly smaller (0.8) than diameter of AME.

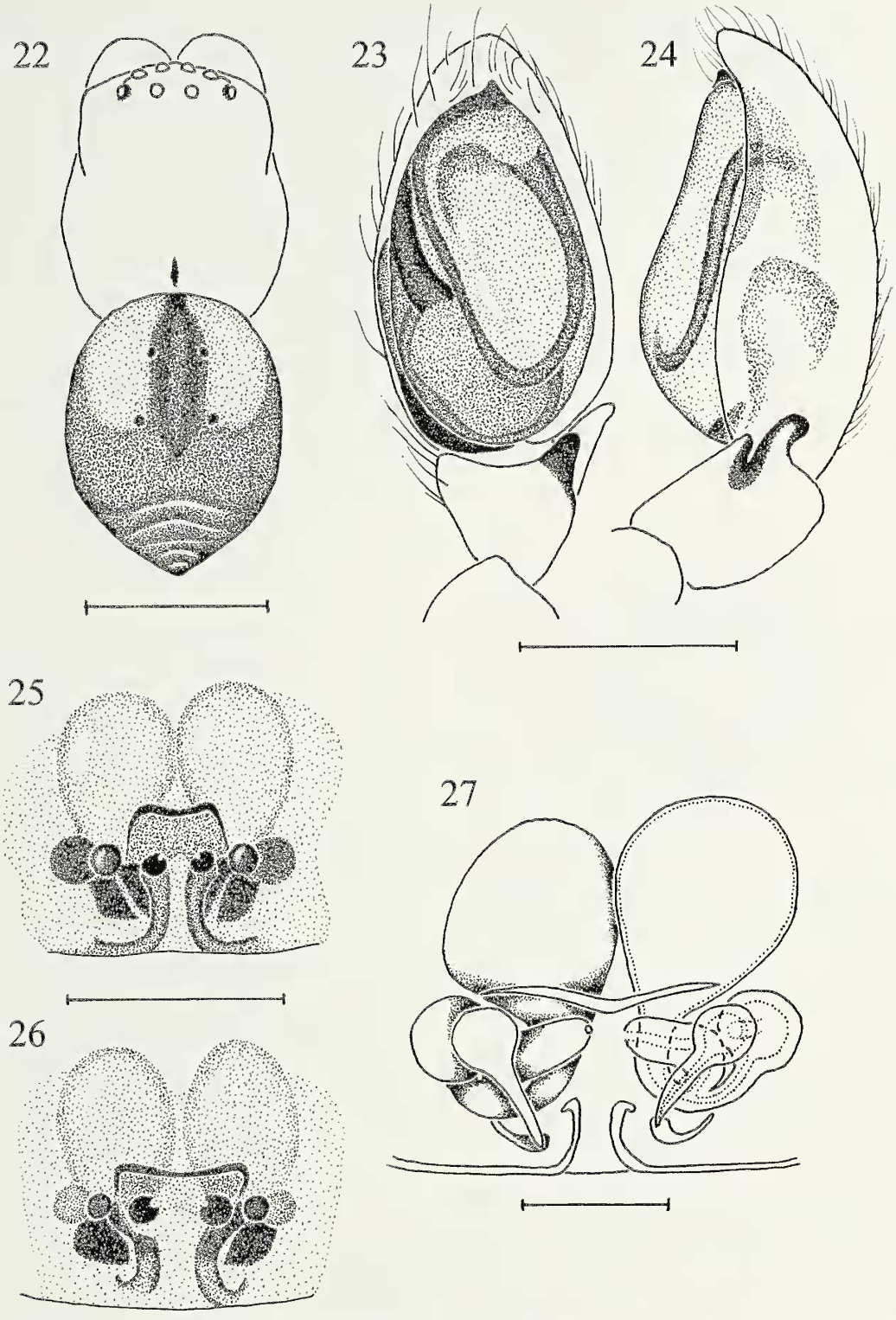
Chelicerae chestnut brown, rugose. Cheliceral boss very pronounced: anterior base of chelicerae protruding almost horizontally. Promarginal rim with three teeth, increasing in size towards fang base, retromarginal rim with two subequal teeth.

Sternum smooth with some isolated small pits, yellow brown with a darker border, which is almost obscuring the weak, pointed PCT. ICS blunt. PSP ribbon-shaped, hemicircular. Labium as long as wide. Maxillae without oblique depression.

Legs spineless, covered with fine hairs, legs I and II ochre, legs III and IV pale yellow. Leg cusps absent. Dense ventral scopulae consisting of erectile bristles on ta, mt and ti I and II. Ventral terminal preening brush on mt III and IV sparse. Leg formula 1,4,2,3.

Leg measurements:

	fe	pa	ti	mt	ta	total
I	0.89	0.37	0.79	0.47	0.34	2.87
II	0.74	0.32	0.55	0.39	0.34	2.34
III	0.53	0.24	0.39	0.47	0.24	1.87
IV	0.79	0.29	0.60	0.74	0.26	2.68



Figures 22–27.—*Trachelas rayi*: 22. Male, do; 23. Left male palp, ve; 24. Left male palp, rl; 25, 26. Epigyna, ve; 27. Vulva, ve. Scale bars: 22: 1 mm; 23–26: 0.25 mm; 27: 0.1 mm.

Abdomen grey with a longitudinal, dagger-shaped dark grey mark enclosed between two oval white patches in anterior half and 4–6 thin, transversal white chevrons in posterior quarter (Fig. 22). Dorsal scutum absent.

Male palp with bifid RTA, consisting of a short, subtriangular ventral part and a longer, recurved and blunt dorsal part (Fig. 24). Bulbus oval, with a short and blunt apical embolus. Sperm ducts partly discernable through transparent cuticle (Figs. 23, 24).

Female: Total length 2.60–3.70. Carapace l 1.40, w 1.24, reddish brown, entirely covered with small warts carrying diminutive, transparent hairs. Cephalic part slightly wider than 2/3 of carapace width. Chilum single, sclerotized, brown.

Eyes as in male. Clypeus height smaller (0.6) than diameter of AME.

Chelicerae structured and toothed as in male, but cheliceral boss somewhat less pronounced.

Sternum smooth with some isolated small pits, brown with darker, thickened border. PCT pointed, more conspicuous than in male. PSP subtriangular, with a blunt tip directed towards sternum. Labium as long as wide. Maxillae without oblique depression.

Legs as in male, all femora paler than distal articles. Leg cusps absent. Leg formula 4,1,2,3.

Leg measurements:

	fe	pa	ti	mt	ta	total
I	0.92	0.39	0.79	0.58	0.39	3.08
II	0.84	0.37	0.66	0.53	0.37	2.76
III	0.66	0.26	0.53	0.53	0.26	2.24
IV	0.92	0.37	0.79	0.89	0.34	3.31

Abdomen oval, colored as in male (Fig. 8). Dorsal scutum absent.

Epigynum poorly sclerotized, with a central depression anteriorly bordered by a narrow, arc-shaped hood enclosing the two dark, sclerotized COs. The large, anteriorly situated, piriform ST2 are clearly visible through the transparent cuticle (Figs. 25, 26).

Vulva (Fig. 27) shows two large piriform ST2 anterior to a thin, arc-shaped epigynal hood. Immediately posterior to the hood are the medially situated COs and the first stretch of the ID, which is directed outward, then bent in caudal direction and splitting in a wide duct towards ST2 and a narrower one, directed outward and connecting to the dumb-bell-shaped, posterolaterally situated ST1. ST1 consists of two globular, interconnected lumina. The smaller, ventral lumen is connected to the long, tapering FD, the larger dorsal one communicates with the ID.

Natural history.—Lives on sunny slopes in open vegetation and vineyards. Often found among dry leaves and in pruning litter (Simon 1878a).

Distribution.—France, Italy (Platnick 2008, Trotta 2005). Was cited from the Iberian Peninsula by Cardoso (2004): Val do Guadiana nature reserve, Serpa, one specimen on *Cystus* sp., 120 m. Our data establish the presence of *T. rayi* in Spain and Algeria.

Remarks.—*Trachelas purus*, only known from a single female collected on bushes on 6 September 1960 in Chioggia, Italy; has never been collected again. The type specimen could not be obtained, but Kritscher's description (Kritscher 1969) is fully compatible with all characteristics of *T. rayi*, a species which has been reported from Italy (Trotta 2005). Kritscher's poor drawing of the epigynum is quite similar to the epigynum of *T. rayi*, with the large anterior ST2, smaller lateral ST1 and a central depression enclosing the COs. *Trachelas purus* is herewith synonymized with *T. rayi*.

Trachelas macrochelis Wunderlich 1992
Figs. 28–33

Trachelas macrochelis Wunderlich 1992:474, figs. 733–739.

Types examined.—Holotype, 1 male, Spain, Canary Islands, Hierro, La Dehesa, July (no year indicated on label), J. Wunderlich leg. (SMF-37153).

Other material examined.—SPAIN: *Cádiz*, Tarifa, March 1991, P. Poot leg., 1♀ (CRB); Torre de la Higuera, dunes, among stones and debris, 9 April 1994, 4♀ (CRB); *Almería*, Cabo de Gata, small bushes in dunes, 10 m, 6 April 1997, 1♀ (CRB). ALGERIA: *Djelfa*, Djelfa, Dj. Djellal, *Pinus halepensis* forest, 1310-1400 m, pt, 1990-1991, 1♀ (CRB).

Diagnosis.—*Trachelas macrochelis* is closest to *T. rayi*, from which it differs by the very large male chelicerae, by its abdominal pattern consisting of a dark grey-green background featuring four ill-defined pale patches in the anterior half and a number of thin white chevrons in the posterior half, by its male palp with a very short and blunt RTA and a short, pointed and retrolaterally curved apical embolus (Fig. 29), and by the epigynum being anteriorly bordered by a wide, semicircular, laterally curled hood (Fig. 32).

Description.—*Male:* Total length 2.95. Carapace l 1.47, w 1.16, orange brown, slightly rugose. Cephalic part wide (almost 9/10 of carapace width), rounded and bulging. Chilum single, sclerotized, orange.

All eyes subequal, eyes in AER equidistant, separated by one diameter. Eyes of PER also equidistantly spaced, separated by slightly less than two diameters (Fig. 28). Clypeus height 3/4 of diameter of AME.

Chelicerae orange, very large, cheliceral boss very pronounced: anterior base of chelicerae protruding almost horizontally. Promarginal rim with three teeth, increasing in size towards fang base, retromarginal rim with two teeth.

Sternum smooth, greyish yellow with a darker border, which largely obscures the small, pointed PCT. ICS blunt. PSP subtriangular, with a blunt tip directed towards sternum. Labium slightly longer than wide, 3/4 of maxilla length. Maxillae without oblique depression.

Legs spineless, orange, covered with fine hairs. Leg cusps absent. Ventral scopulae on ta and mt I and II, almost none on ti I and II. Ventral terminal preening brush on mt III and IV brownish. Leg formula 4,1,2,3.

Leg measurements:

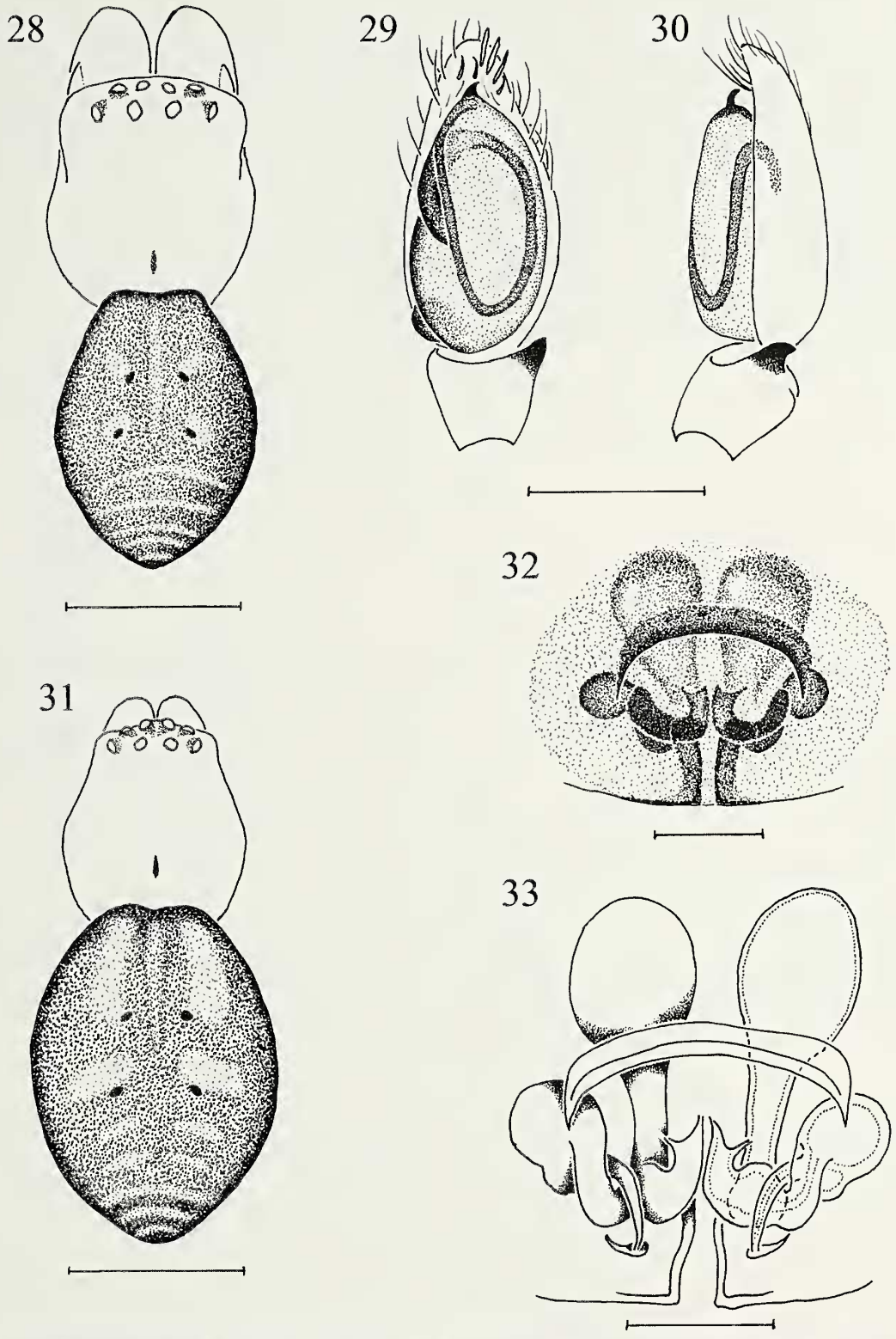
	fe	pa	ti	mt	ta	total
I	0.84	0.32	0.66	0.55	0.39	2.76
II	0.76	0.32	0.58	0.50	0.34	2.50
III	0.63	0.29	0.45	0.50	0.24	2.10
IV	0.87	0.34	0.63	0.79	0.26	2.89

Abdomen greyish green with four ill-defined paler patches surrounding sigilla in anterior half and 5-6 thin, transversal pale chevrons in posterior half (Fig. 28). Dorsal scutum absent.

Male palp with very short and blunt RTA (Fig. 29). Bulbus oval, with a short, pointed and retrolaterally curved apical embolus. Sperm ducts partly discernable through transparent cuticle (Figs. 29, 30).

Female: Total length 2.84–3.71. Carapace l 1.26, w 1.08, brown, almost smooth, cephalic part about 2/3 of carapace width. Chilum single, sclerotized, brown.

All eyes subequal, AME separated by one diameter from each other and by 2/3 diameter from ALE. Eyes of PER



Figures 28–33.—*Trachelas macrochelis*: 28. Male holotype, do; 29. Right male palp, ve (inverted); 30. Right male palp, rl (inverted); 31. Female, do; 32. Epigynum, ve; 33. Vulva, ve. Scale bars: 28, 31: 1 mm; 29, 30: 0.25 mm; 32, 33: 0.1 mm.

equidistantly spaced, separated by about 1.5 diameters (Fig. 31). Clypeus height 2/3 of diameter of AME.

Chelicerae yellow-brown, granulated, structured and toothed as in male, but smaller and with a less pronounced cheliceral boss.

Sternum smooth, brown with darker, thickened border. PCT small and sharply pointed, ICS blunt. PSP as in male. Labium as long as wide. Maxillae without oblique depression.

Legs spineless, covered with fine hairs, legs I and II orange, legs III and IV orange-yellow. Leg cusps absent. Ventral

scopulae consisting of erectile bristles on ta, mt, and ti I and II. Leg formula 4,1,2,3.

Leg measurements:

	Fe	pa	ti	mt	ta	total
I	0.87	0.34	0.76	0.58	0.42	2.97
II	0.79	0.32	0.66	0.55	0.37	2.68
III	0.58	0.24	0.39	0.53	0.26	2.00
IV	0.92	0.32	0.74	0.84	0.32	3.13

Abdomen dark greenish grey with two pear-shaped pale patches followed by two transversal light patches in anterior half and 5-6 pale, thin transversal chevrons in posterior half (Fig. 31). Dorsal scutum absent.

Epigynum poorly sclerotized, with a central depression anteriorly bordered by a wide, semicircular hood enclosing two small, centrally located COs connected with the clearly visible lateral, circular ST1 by a conspicuous, dark brown ID. The large, anteriorly situated, piriform ST2 are partly visible through the transparent cuticle (Fig. 32).

Vulva (Fig. 33) shows two large piriform ST2 anterior to a thin, ellipsoidal, laterally curved epigynal hood. Immediately posterior to the hood are the medially situated COs and the first stretch of the ID, which is directed outward, widened halfway and splitting in an anteriorly directed duct towards ST2 and an outwards oriented one connecting to the laterally situated ST1, which consists of two globular lumina interconnected by a solenoidally coiled canal. The posterior lumen of ST1 is connected to a long and thin FD.

Distribution.—Not a Macaronesian endemic as stated by Wunderlich (1992) and Platnick (2008). Our data expand the species' range to the Iberian mainland and Algeria.

Trachelas amabilis Simon 1878
Figs. 34–37

Trachelas amabilis Simon 1878b:50.

Types examined.—Lectotype (designated here), 1 female, specimen in separate glass microtube, Algeria, Oran, Daya, 36°7'N, 0°20'E; paratypes: 3 females, 2 juveniles Algeria, Oran, Daya; Tunisia, Mahadia, no additional details on label (MNHN-1784).

Other material examined.—ALGERIA: *Boumerdes*, Reghaya, dunes near shore, 5 m, 31 October 1985, 1♀ (CRB). TUNISIA: *Gafsa*, Lidillat, 1 juv., "Auct. det." (MNHN).

Diagnosis.—*Trachelas amabilis* is closest to *T. macrochelis* from which it differs by its larger size and by its abdominal pattern, consisting of a dark purplish brown background with a longitudinal, dagger-shaped black mark flanked on each side by two oval cream patches in the anterior half and followed by 5–7 wide, transversal cream chevrons in the posterior half (Fig. 34), and by the epigynum which is bordered by a wide, anterior arc-shaped hood that is not laterally curled (Figs. 35, 36).

Description.—*Male:* unknown.

Female: Total length 3.80–5.20 (LT 4.65). Carapace l 1.97, w 1.58, chestnut brown, entirely covered with small warts carrying diminutive, transparent hairs. Cephalic part slightly wider than 2/3 of carapace width. Chilum single, sclerotized, brown.

All eyes subequal, AME separated by less than one diameter, closer to each other than to ALE. Eyes of PER equidistantly spaced, separated by 1.5 diameters (Fig. 34). Clypeus height smaller (0.7) than diameter of AME.

Chelicerae brown, rugose. Cheliceral boss pronounced, anterior base of chelicerae protruding almost horizontally. Promarginal rim with three teeth, diminishing in size towards cheliceral base, retromarginal rim with two subequal teeth.

Sternum smooth with some isolated small pits, brown with darker, thickened border. PCT sharply pointed, ICS blunt. PSP subtriangular, with a blunt tip directed towards sternum. Labium as long as wide. Maxillae without oblique depression.

Legs spineless, covered with fine hairs, orange yellow. Leg cusps absent. Dense ventral scopulae consisting of erectile bristles on ta, mt and ti I and II. Ventral terminal preening brush on mt III and IV sparse. Leg formula 4,1,2,3.

Leg measurements:

	fe	pa	ti	mt	ta	total
I	1.32	0.53	1.03	0.82	0.53	4.21
II	1.16	0.47	0.92	0.76	0.47	3.79
III	0.92	0.39	0.60	0.76	0.34	3.02
IV	1.32	0.47	1.03	1.18	0.39	4.39

Abdomen dark purplish brown with a longitudinal, dagger-shaped black mark flanked on each side by two oval cream patches in anterior half and followed by 5–7 wide, transversal cream chevrons in posterior half (Fig. 34). Dorsal scutum absent.

Epigynum poorly sclerotized, with a central depression anteriorly bordered by a wide, semicircular hood enclosing the two dark, sclerotized COs. The large, anteriorly situated, piriform ST2 are clearly visible through the transparent cuticle (Figs. 35, 36).

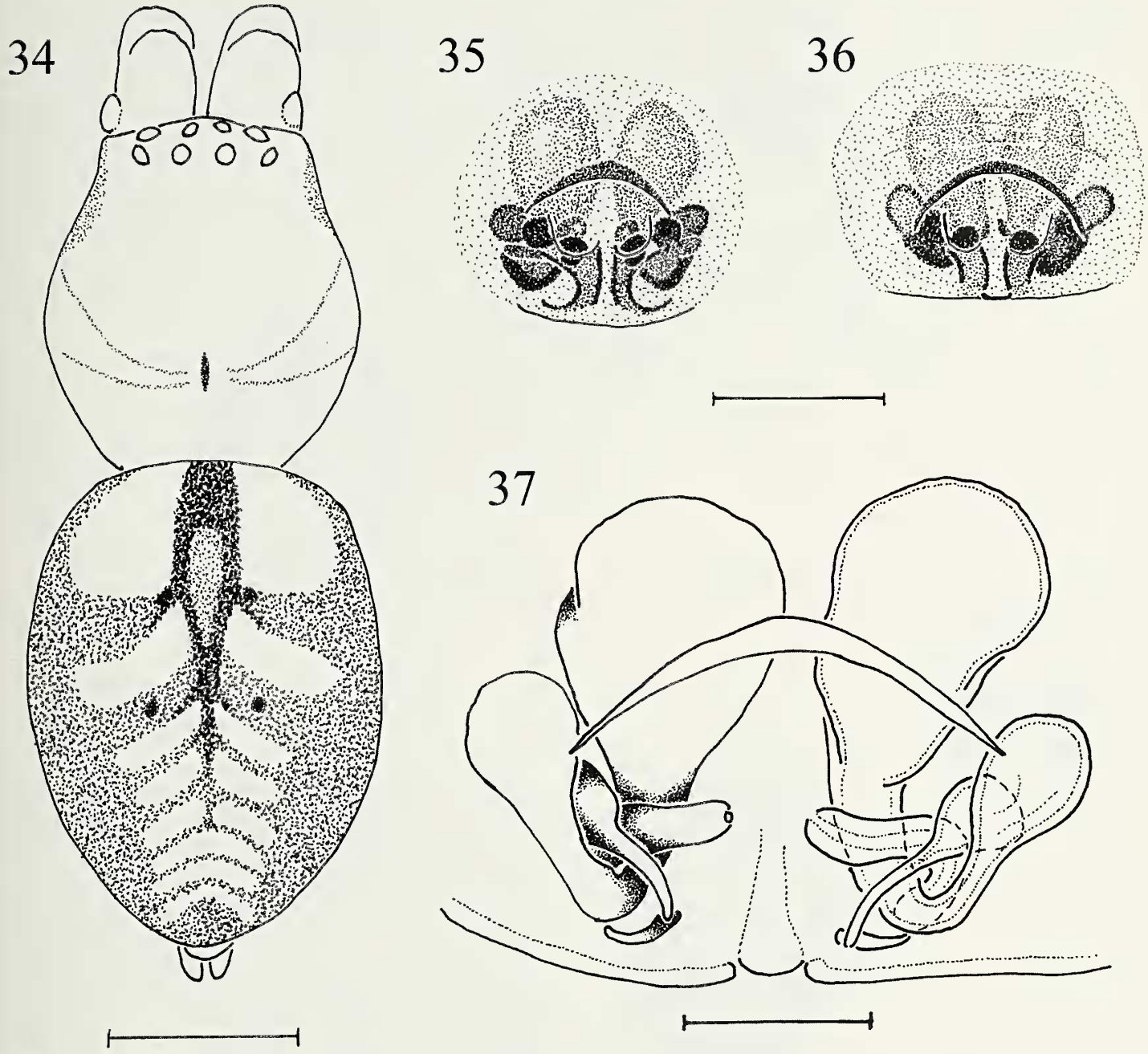
Vulva (Fig. 37) shows two large piriform ST2 anterior to a thin, arc-shaped epigynal hood. Immediately posterior to the hood are the medially situated COs and the first stretch of the ID, which is directed outward, then bent in caudal direction and splitting in a wide duct towards ST2 and a narrower one, directed outward and connecting to the dumb-bell-shaped, posterolaterally situated ST1. ST1 consists of two globular, interconnected lumina. The smaller; dorsal lumen is connected to the long and thin FD, the larger ventral one communicates with the ID.

Distribution.—Algeria, Tunisia (Platnick 2008). The present data confirm the known range of the species. *Trachelas amabilis* has not yet been found on the Iberian Peninsula, but is included in the present revision because of the close proximity of its distribution area to the region of interest.

Trachelas maculatus Thorell 1875
Figs. 40, 41

Trachelas maculatus Thorell 1875a:77;
Thorell 1875b:87; Chyzer & Kulczyński 1897:253, pl. 10, fig. 15; Mikhailov 1987:1583, figs. 1, 2.
Trachelas flavipes Koch 1882:638, pl. 20, figs. 17, 18, NEW SYNONYMY.

Material examined.—FRANCE: *Paris*, Parc de Bercy, Le Labyrinthe et Le Jardin Aromatique, sn, 23 October 2004, 1♀ (CCH).



Figures 34–37.—*Trachelas amabilis*: 34. Female lectotype, do; 35, 36. Epigyna, ve; 37. Vulva, ve. Scale bars: 34: 1 mm; 35, 36: 0.25 mm; 37: 0.1 mm.

Diagnosis.—*Trachelas maculatus* is closest to *T. validus*, from which it differs by its grey abdomen having four vague, irregular pale patches in the frontal half, the pale patches revealing an underlying pattern of tiny, dark grey spots (Fig. 41), by a male palp with a thin hemicircular apical embolus, and by the epigynal depression which is bordered by a wide, arched anterior hood situated anterior to the large piriform ST2 (Fig. 40).

Description.—(Translated and adapted from Chyzer & Kulczyński 1897 and Mikhailov 1987)

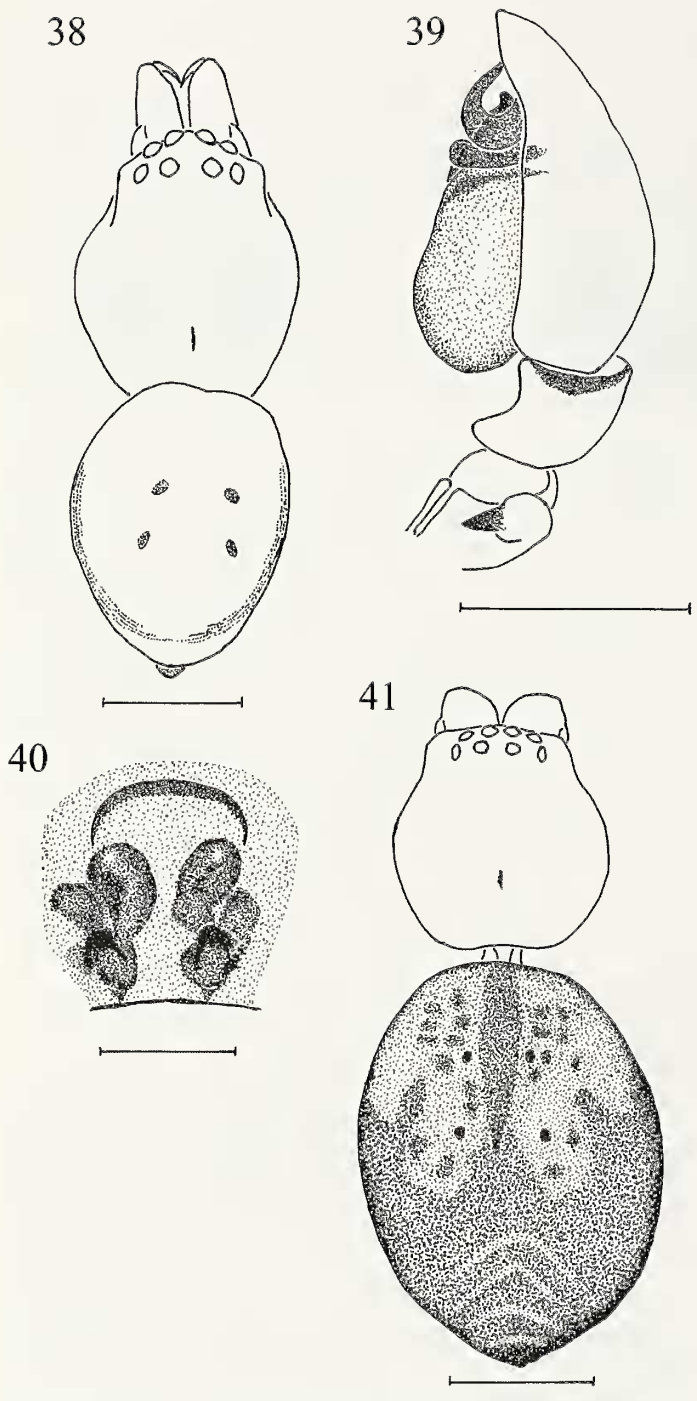
Male: Total length 4.10. Carapace l 1.95, w 1.71, light chestnut brown, with small pronounced pits. Cephalic part slightly wider than 2/3 of carapace width.

Eyes of AER subequal and equidistant, separated by less than one diameter. Eyes of PER also subequal and equidistant, separated by somewhat less than two diameters. Eye diameter in AER 5/6 of eye diameter in PER.

Chelicerae chestnut brown, rugose. Cheliceral boss very pronounced: anterior base of chelicerae protruding almost horizontally. Promarginal rim with three, retromarginal rim with two teeth.

Sternum light chestnut brown, slightly pitted.

Legs spineless, orange brown, femora of anterior legs darker. Tarsi with two claws and claw tufts. Ti and mt I with ventral leg cusps (Platnick & Shadab 1974, Platnick & Ewing 1995). Leg formula 1,2,4,3.



Figures 38–41.—*Trachelas* species. 38, 39. *Trachelas pusillus*: 38. Male holotype, do; 39. Right male palp, rl (inverted). 40, 41. *Trachelas maculatus*: 40. Epigynum, ve; 41. Female, do. Scale bars: 38: 0.5 mm; 39, 40: 0.25 mm; 41: 1 mm.

Leg measurements:

	Fe	pa	ti	mt	ta	total
I	1.77	0.78	1.47	1.16	0.65	5.82
II	1.48	0.62	1.29	1.06	0.60	5.04
III	1.01	0.47	0.72	0.86	0.42	3.48
IV	1.27	0.59	1.13	1.24	0.48	4.69

Abdomen grey with two large, irregular light spots anteriorly and two transversal median light patches.

Male palp with long, pointed and dorsally recurved RTA. Bulbus oval, with a thin and pointed apical embolus describing a hemicircle. Ventrally appressed to the embolus is a transparent apophysis which can be considered a functional conductor. Sperm ducts partly discernable through transparent cuticle.

Female: Total length 3.88. Carapace l 1.88, w 1.65, colored and textured as in male. Cephalic part slightly wider than 2/3 of carapace width.

All eyes subequal, Eyes of AER separated by less than one diameter, eyes of PER separated by about 1.5 diameters (Fig. 41).

Chelicerae brown, structured and toothed as in male, but cheliceral boss somewhat less pronounced.

Sternum smooth with some isolated small pits, orange brown with darker, thickened border. PCT and ICS strongly sclerotized and pointed, except ICS III, which is blunt. PSP subtriangular. Labium as long as wide. Maxillae without oblique depression.

Legs spineless, legs I and II orange brown, legs III and IV yellow. Leg cusps absent. Leg formula 4,1,2,3.

Leg measurements:

	fe	pa	ti	mt	ta	total
I	1.40	0.69	1.07	0.93	0.64	4.73
II	1.29	0.66	1.07	0.97	0.57	4.56
III	0.97	0.54	0.74	0.83	0.40	3.48
IV	1.36	0.64	1.21	1.31	0.50	5.02

Abdomen grey with two large, irregular light spots anteriorly, two transversal median light patches and a number of thin transversal chevrons in posterior part (Fig. 41). The four large, pale patches reveal an underlying pattern of tiny, darker grey spots. Dorsal scutum absent.

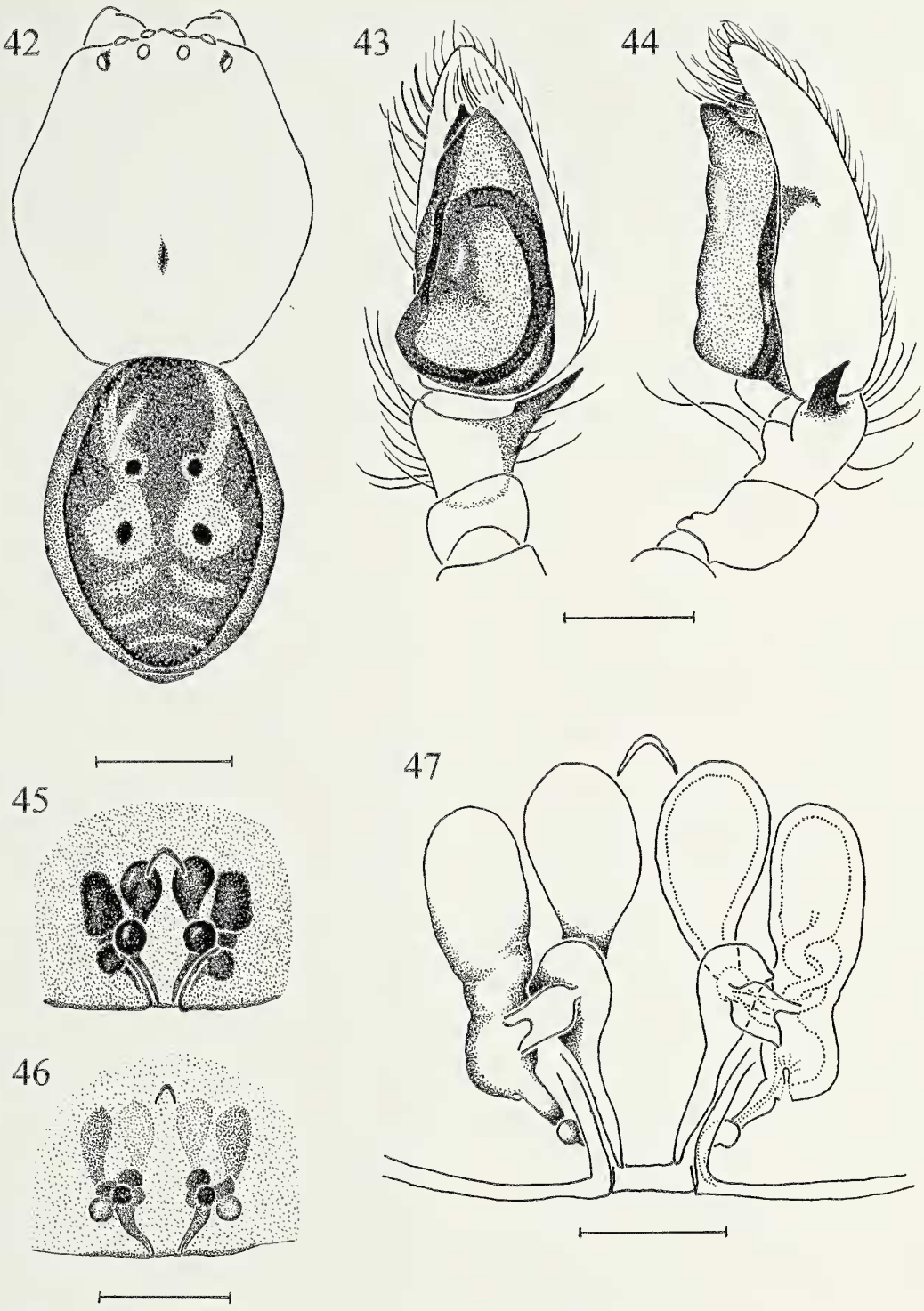
Epigynum poorly sclerotized, with a wide central depression anteriorly bordered by a broad, arc-shaped hood situated well in front of the large, piriform ST2 which are clearly visible through the transparent cuticle (Fig. 40). The large, oval COs are situated in the posterior part of the epigynal depression.

Distribution.—Black Sea region, Eastern Europe (Platnick 2008), Hungary, Croatia, Italy (Trotta 2005), France, Spain (Mallorca).

Remarks.—*Trachelas flavipes* Koch 1882 is only known from a single female from Sóller (Mallorca, Spain). In spite of collecting efforts, it has never been collected again on Mallorca (Pons & Palmer 1996). The type specimen has been lost (Braun 1965), but Koch's description (Koch 1882) is fully compatible with all characteristics of *T. maculatus*, a species which has been reported from Italy (Trotta 2005) and recently from France (Hervé, pers. comm.). Koch's poor drawings of the epigynum are surprisingly similar to the main outlines of ST2 and the large CO in the epigynal depression of *T. maculatus*, as also depicted in Chyzer & Kulczyński 1897:pl. 10 fig. 15c. *T. flavipes* is herewith synonymized with *T. maculatus*.

Trachelas validus Simon 1884
Figs. 5, 42–49

Trachelas validus Simon 1884:123.



Figures 42–47.—*Trachelas validus*: 42. Male, do; 43. Left male palp, ve; 44. Left male palp, rl; 45, 46. Epigyna, ve; 47. Vulva, ve. Scale bars: 42: 1 mm; 43–46: 0.25 mm; 47: 0.1 mm.

Types examined.—Holotype male, specimen in separate glass microtube, Spain, Burgos, Miranda de Ebro; paratypes: 2 males, 1 female, 2 juveniles, same data (MNHN-5659).

Other material examined.—SPAIN: *Salamanca*, Vallejera de Riofrío, (40°24′N, 5°44′W) 1200 m, oakwood, pt, 11 February 1984, 1♀, F. Ribas & C. Urones leg. (CCU). *Santander*, Puente Viesgo, (43°25′N, 3°97′W), 1 juv (MNCN). *Zamora*: Parque Regional del Lago de Sanabria, Cobreros (42°4′N, 6°42′W) oakwood, 1200 m, 11 April 2004, hc, 1♀ (JMA); 1300–1500 m, 12 September 2004, 1♂,1♀, subadult ♂♀ (JMA); 1100–1200 m, 11 October 2004, 2♀ (JMA); 1200–1350 m, 7 December 2004, 2♀ (JMA). Galende (42°6′N, 6°40′W) oakwood, 1400 m, 14 April 2004, hc, 1♀ (JMA); 1050 m, 15 April 2004, 2♀ (JMA); 1450 m, 7 August 2004, 1♀ (JMA); 1250 m, 12 October 2004, 1♀ (JMA); 1150 m, 5 December 2004, 1♀ (JMA). *León*, Villanueva de las Manzanas, under stones, hc, 12

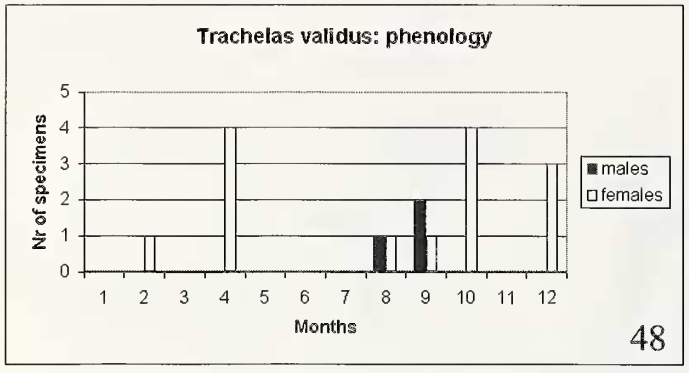


Figure 48.—*Trachelas validus*. Phenology.

August 1994, 1♂ (CRB). PORTUGAL: *Estremadura*: Tapada Nacional de Mafra (38°98′N, 9°35′W) Povoa de Cima, oakwood, 4 September 2001, pt, 1♂, G. Telfer leg. (CCU). Vila Pouca, pine wood, 1 October 2001, pt, 1♀, G. Telfer leg. (CCU). *Porto*, Porto, 2♂ (MNHN-19688).

Diagnosis.—*Trachelas validus* is closest to *T. ibericus*, from which it differs by its pitted sternum, by its male abdominal pattern consisting of a grey background with four large lighter patches surrounding the sigilla in the anterior half and a number of wide transversal light chevrons in the posterior half (Fig. 42), by the very short and blunt terminal embolus and the long and pointed, dorsally recurved RTA of the male palp (Figs. 43, 44), and by the narrow anterior hood of the epigynum (Figs. 45, 46).

Description.—*Male:* Total length 2.79–4.68 (HT 4.68, PT 3.36, 4.52). Carapace l 2.50, w 2.05, reddish brown to chestnut brown, covered with small pits carrying diminutive, transparent hairs. Cephalic part wide (3/4 of carapace width), rounded and bulging. Chilum single, sclerotized, brown.

Eyes subequal, anteriors separated by slightly less than one diameter, posteriors separated by about two diameters (Fig. 42). Clypeus height slightly larger than diameter of AME.

Chelicerae chestnut brown, rugose. Basal cheliceral boss very pronounced: anterior base of chelicerae protruding almost horizontally. Promarginal rim with three teeth, smallest one closest to cheliceral base (furthest from fang insertion), largest one in the middle. Retromarginal cheliceral rim with three teeth, diminishing in size towards fang base.

Sternum dotted with pits each carrying a pointed brown hair, orange brown with a darker border. PCT and ICS strongly sclerotized, blunt. PSP subtriangular. Labium as long as wide. Maxillae without oblique depression.

Legs spineless, covered with fine hairs, legs I and II orange brown, legs III and IV orange yellow. Leg I with two rows of leg cusps (Platnick & Shadab 1974a; Platnick & Ewing 1995) on ti (pl 8–9, rl 1–2), mt (pl 7–10, rl 0–2), and ta (pl 3–4, rl 1–2), leg II with a single pl row of leg cusps on ti (4), mt (7–8), and ta (3). No ventral scopulae on ta, mt, and ti I and II. Leg formula 1,2,4,3.

Leg measurements:

	fe	pa	ti	mt	ta	total
I	1.68	0.71	1.39	0.84	0.63	5.26
II	1.53	0.66	1.32	0.84	0.63	4.97
III	1.00	0.53	0.74	0.89	0.42	3.58
IV	1.32	0.58	1.13	1.32	0.50	4.84

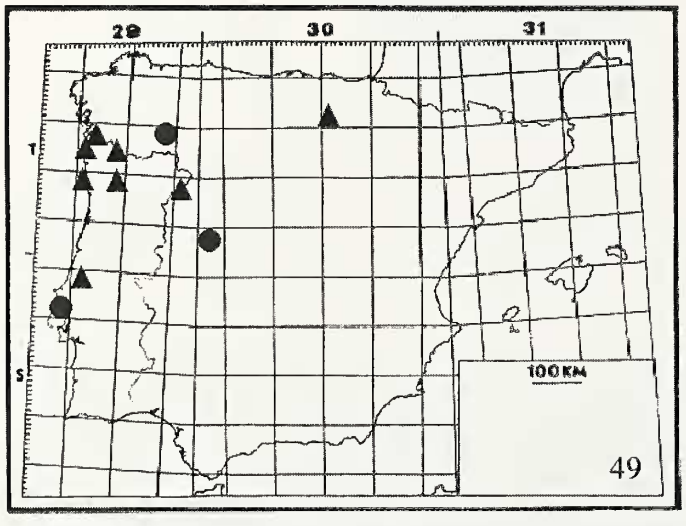


Figure 49.—*Trachelas validus*. Distribution on the Iberian Peninsula. Triangles: bibliographic data. Circles: new finds.

Abdomen grey with a brown dorsal scutum covering almost the entire abdomen and four light patches surrounding sigilla in anterior half, as well as a few wide, transversal light chevrons in posterior half (Fig. 42). Epigastric region sclerotized, yellow brown.

Male palp with a broad, long and sharp, dorsally recurved RTA (Fig. 44). Bulbus subtriangular, ending in a blunt tip which is situated retrolaterally of the short and blunt apical embolus. Sperm ducts partly discernable through transparent cuticle (Figs. 43, 44).

Female: Total length 4.52–4.89 (PT 4.52). Carapace l 1.97, w 1.66, reddish brown, covered with small pits carrying diminutive, transparent hairs. Cephalic part wide (3/4 of carapace width), rounded and bulging. Chilum single, sclerotized, brown.

All eyes subequal, except AME which are about 4/5 of others. Eyes in AER equidistant, separated by about 3/4 of AME diameter, eyes in PER also equidistant, separated by about 1.5 AME diameters (Fig. 6). Clypeus height slightly larger than diameter of AME.

Chelicerae brown, structured and toothed as in male, but cheliceral boss somewhat less pronounced.

Sternum dotted with pits each carrying a pointed brown hair, yellow brown with a darker border. PCT, ICS, and PSP as in male. Labium as long as wide. Maxillae without oblique depression.

Legs spineless, covered with fine hairs, legs I and II orange brown, legs III and IV orange. Leg cusps absent. Dense ventral scopulae consisting of pale erectile bristles on ta and mt I and II, scopulae on ti I and II sparse to absent. Leg formula 4,1,2,3.

Leg measurements:

	fe	pa	ti	mt	ta	total
I	1.47	0.66	1.16	0.82	0.60	4.71
II	1.45	0.63	1.13	0.74	0.63	4.58
III	0.92	0.53	0.76	0.79	0.42	3.42
IV	1.32	0.58	1.18	1.32	0.47	4.87

Abdomen grey with a dark grey longitudinal dagger-shaped mark and four light patches surrounding sigilla in anterior half, as well as a few wide, transversal light chevrons in posterior half (Fig. 6). Dorsal scutum absent.

Epigynum poorly sclerotized, with a narrow, anterior, subtriangular arc-shaped hood. Two dark brown, circular, sclerotized COs separated by two diameters are situated somewhat more than halfway between anterior and posterior limit of epigynum. Clearly visible through the transparent cuticle are two large, piriform ST2 situated immediately anterior to the CO, and two similarly shaped ST1 situated laterally and exterior to these (Figs. 45, 46).

Vulva (Fig. 47) shows two large piriform ST2 posterior to a narrow, arc-shaped epigynal hood. Immediately posterior to ST2 are the heavily sclerotized COs, connected by a short stretch of ID to both ST2 and ST1, the latter situated laterally to the outside of ST2. ST1 subcylindrical, with long axis directed longitudinally, consisting of two lumina interconnected by two solenoidal, intertwined canals. The smaller; globose, posterior lumen is connected to the thin, tapering FD, the larger, ovoidal, anterior one communicates with the ID.

Natural history.—Ground-dwelling spider that has been collected in humus, leaf litter, *Buxus sempervirens* shrub (Simon 1884), on mosses, on walls (Machado 1937) and under stones, both as hand captures and in pitfalls. Lives in areas with diverse vegetation: Mediterranean Cork Oak wood (*Quercus suber* L.), Rebollo Oak wood (*Quercus pyrenaica* Willd.), Maritime Pine wood (*Pinus pinaster* L.) and riverine bush (with *Salix* sp.). Occurs over a large elevation gradient, from 10 m above sea level (Beira Litoral, Cardoso 2007) to 1500 m in the regions of Sanabria in Zamora. Adult males are found in August (Simon 1884) and September, adult females from August to December, as well as in February and April (Fig. 48).

Distribution.—An Iberian endemic (Melic 2001): has been cited from Spain, *Burgos* (Simon 1884) and Portugal (Simon 1898; Machado 1937; Cardoso 2004, 2007). Our data establish the presence of *T. validus* in the Spanish provinces León, Salamanca, Santander and Zamora (Fig. 49). They constitute the known Southern, Northern, and Western limits of distribution.

Remarks.—*Trachelas validus* is variable in genitalic morphology as well as in size. The transparency of the epigynum as well as the width of the anterior hood are variable (Figs. 45, 46). There is also variation in the length and dorsal curvature of the male palpal RTA and in the sharpness of the bulbus tip. Bosmans collected a quite small male specimen (body length 2.79) in Villanueva de las Manzanas.

Trachelas ibericus new species
Figs. 1–3, 50–57

Types examined.—Holotype male, Spain, Salamanca, Aldearrubia, (41°2′N, 5°28′W) 820 m, pine wood, pt, 9 October 1984, J.L. Fernández & C. Urones leg. (MNCN); allotype female: same data (MNCN); paratypes: 1 male, 1 female, Salamanca, Martinamor (Cuatro Calzadas) (40°49′N, 5°38′W) 900 m, Holm Oak wood, pt, 8 September 1984, J.L. Fernández & C. Urones leg. (CCU).

Other material examined.—SPAIN: *Córdoba*, Arroyo Calderas (37°54′N, 5°12′W) 183 m, pt, 4 January 1983, 1♀, M. Gaju leg. (CCU). *Gerona*, Fitor, (41°54′54″N, 3°5′25″E) 230 m, *Eucalyptus* plantation, sl, 6 August 2002, 1♂, J. Bosselaers leg. (CJB). *Salamanca*, Aldearrubia, (41°2′N, 5°28′W) 820 m, pine wood, pt, 2 February 1984, 1♀, F. Ribas & C. Urones leg. (CCU); 22 March 1984, 1♀, F. Ribas & C. Urones leg. (CJB); 23 April 1985, 1♀, J.L. Fernández & C. Urones leg. (CCU). Béjar (40°22′N, 5°47′W) 900 m, Chestnut wood, pt, 8 September 1984, 1♂, M. Jerardino & C. Urones leg. (CCU); 25 September 1984, 1♂, M. Jerardino & C. Urones leg. (CCU); 30 October 1984, 1♂, M. Jerardino & C. Urones leg. (CCU). Martinamor (Cuatro Calzadas) (40°49′N, 5°38′W) 900 m, Holm Oak wood, pt, 31 March 1984, 4♀♀, F. Ribas & C. Urones leg. (CCU); 5 May 1984, 1♀, F. Ribas & C. Urones leg. (CCU); 26 June 84, 1♀, F. Ribas & C. Urones leg. (CCU); 25 August 1984, 1♂, J.L. Fernández & C. Urones leg. (CCU); 25 September 1984, 2♂♂, J.L. Fernández & C. Urones leg. (CCU); 9 October 1984, 1♂, J.L. Fernández & C. Urones leg. (CCU); 6 December 1984, 2♂♂1♀, J.L. Fernández & C. Urones leg. (CJB, CCU); 28 March 1985, 2♀♀, J.L. Fernández & C. Urones leg. (CJB, CCU). *Cáceres*, Talavan, Finca Del Baldio, pt, 10 July - 8 November 1996, 1♂, U. Stengele leg. (CRB). PORTUGAL, *Alto Alentejo*, Évora, Montemor-O-Novo, Autumn 2004, 1♂, S. Mendes leg. (no further data). FRANCE, *Pyrenées Orientales*, Banyuls, 4 November 1911, 1♀, (misidentified as *T. rayi*) (MNHN-4.25.9.62, Collection Berland). ALGERIA, *Oran*, Daya, 1♀ (misidentified as *T. anabilis*) (MNHN1874)

Etymology.—The species epithet *ibericus* refers to the Iberian Peninsula, where almost all specimens were collected.

Diagnosis.—*Trachelas ibericus* is closest to *T. validus*, from which it differs by its yellow-brown overall color, smooth sternum and lack of male abdominal pattern, by the very small, pointed RTA, by the male bulbus having a conspicuous basal bump and a long and pointed, prolaterally curved embolus adjacent to a transparent, flat, membranaceous conductor (Figs. 51, 52), and by the sclerotized epigynum with conspicuous anterior COs and a median longitudinal crest in females (Figs. 53, 54).

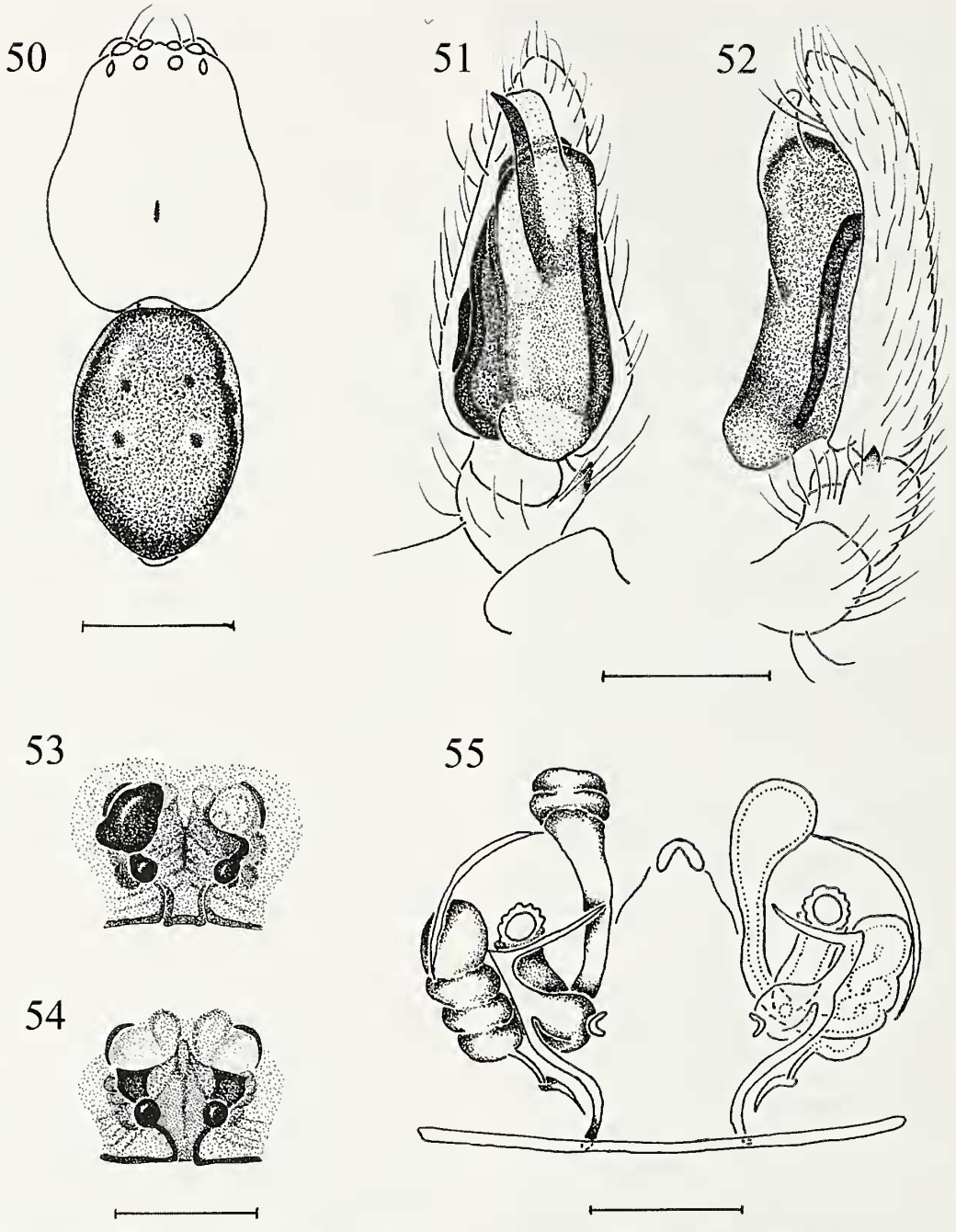
Description.—*Male:* Total length 2.65–3.47. Carapace l 1.74, w 1.47, yellow-brown, covered with small pits carrying diminutive, transparent hairs. Cephalic part wide (slightly less than 3/4 of carapace width), rounded and bulging. Chilum single, sclerotized, yellow-brown (Fig. 1).

Eyes subequal, anteriors separated by about 1/2 diameter, posteriors separated by about 1.5 diameters (Fig. 50). Clypeus height slightly smaller than diameter of AME.

Chelicerae yellow-brown, rugose. Basal cheliceral boss very pronounced: anterior base of chelicerae protruding almost horizontally (Fig. 2). Promarginal rim with three teeth, smallest one closest to cheliceral base (furthest from fang insertion), largest one in the middle. Retromarginal cheliceral rim with three teeth, diminishing in size towards fang base.

Sternum almost smooth, yellow-brown with a darker border. PCT and ICS blunt, PCT only weakly sclerotized. PSP subtriangular. Labium as long as wide. Maxillae without oblique depression.

Legs spineless, covered with fine hairs, legs I and II brown, legs III and IV yellow-brown. Tibiae I and II with one pl row of leg cusps (I 8–13, II 7–10), two rows of leg cusps on mt (I pl 6–8, rl 2–4; II pl 5–6, rl 0–2) and ta (I pl 4–5, rl 2–3; II pl 3–4, rl



Figures 50–55.—*Trachelas ibericus* new species: 50. Male, do; 51. Left male palp, ve; 52. Left male palp, rl; 53, 54. Epigyna, ve; 55. Vulva, ve. Scale bars: 50: 1 mm; 51–54: 0.25 mm; 55: 0.1 mm.

0–2) (Fig. 3). No ventral scopulae on ta, mt and ti I and II. Leg formula 1,2,4,3.

Leg measurements:

	Fe	pa	ti	mt	ta	total
I	1.21	0.45	0.97	0.63	0.53	3.79
II	1.03	0.42	0.92	0.63	0.50	3.50
III	0.71	0.34	0.60	0.66	0.32	2.63
IV	0.87	0.39	0.79	0.89	0.42	3.37

Abdomen grey, without pattern and with a yellow-brown dorsal scutum covering almost the entire abdomen (Fig. 50). Epigastric region sclerotized, yellow brown.

Male palp with an inconspicuous, pointed, very small RTA (Fig. 52). Bulbus subtriangular, with a protruding basal bump (Fig. 52). Embolus long and pointed, prolaterally curved, inserted in anterior half of bulbus and adjacent to a transparent, flat, membranaceous conductor (Fig. 51). Sperm ducts partly discernable through transparent cuticle (Figs. 51, 52).

Female: Total length 3.81–4.05. Carapace l 1.58, w 1.28, Yellow-brown, covered with small pits carrying diminutive, transparent hairs. Cephalic part wide (slightly less than 3/4 of carapace width), rounded and bulging. Chilum single, sclerotized, brown.

All eyes subequal, anteriors separated by less than one diameter, AME closer to each other than to ALE. Posterior

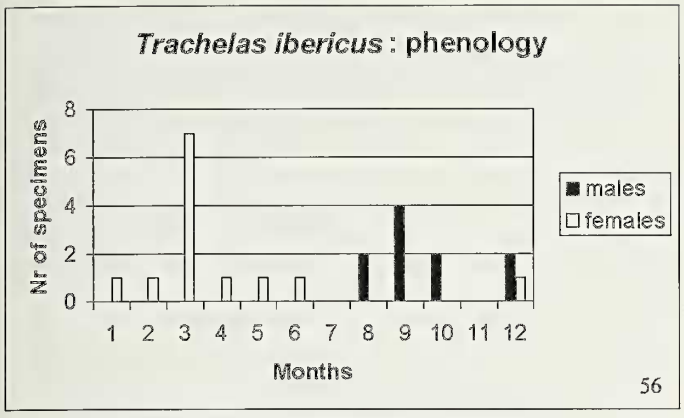


Figure 56.—*Trachelas ibericus*. Phenology.

eyes equidistant, separated by about 1.5 diameters (Fig. 7). Clypeus height slightly smaller than diameter of AME.

Chelicerae colored, structured and toothed as in male, but cheliceral boss somewhat less pronounced.

Sternum dotted with pits each carrying a pointed brown hair, yellow-brown with a darker border. PCT, ICS, and PSP as in male. Labium as long as wide. Maxillae without oblique depression.

Legs spineless, covered with fine hairs, legs I and II orange-yellow, legs III and IV yellow. Leg cusps absent. Dense ventral scopulae consisting of pale erectile bristles on ta, mt, and ti I and II. Leg formula 4,1,2,3.

Leg measurements:

	Fe	pa	ti	mt	ta	total
I	1.05	0.39	0.84	0.60	0.50	3.39
II	1.00	0.39	0.84	0.60	0.47	3.31
III	0.76	0.34	0.55	0.58	0.34	2.58
IV	1.05	0.42	0.89	0.97	0.39	3.73

Abdomen grey with a dark grey longitudinal dagger-shaped mark flanked by two large, crescent shaped longitudinal light spots anteriorly, followed by two transversal median light patches and a number of thin transversal chevrons in posterior part (Fig. 7). Dorsal scutum absent.

Epigynum sclerotized, anterior hood inconspicuous and subtriangular. Symmetry axis of epigynum with a pronounced, longitudinal median crest (Figs. 53, 54). Two large COs in anterior half, often plugged by a dark brown secretion (Fig. 53).

Vulva (Fig. 55) shows two narrow and elongated, median ST2 flanked laterally by a longitudinally elongated ST1 consisting of two small lumina interconnected through two solenoidally coiled, intertwined canals.

Natural history.—Lives in the Mediterranean climate zone, in semi-arid regions with dry and hot summers and cold winters, as well as in humid regions with high precipitation in winter. Has been found such diverse vegetation types as evergreen Holm Oak wood (*Quercus ilex* ssp. *ballota* (Desf.) Samp.), Italian Stone Pine wood (*Pinus pinea* L.), and deciduous Chestnut wood (*Castanea sativa* Miller). Large altitude range: 180–900 m. Specimens have been collected in pitfalls and by hand capture or sifting litter. Adult females

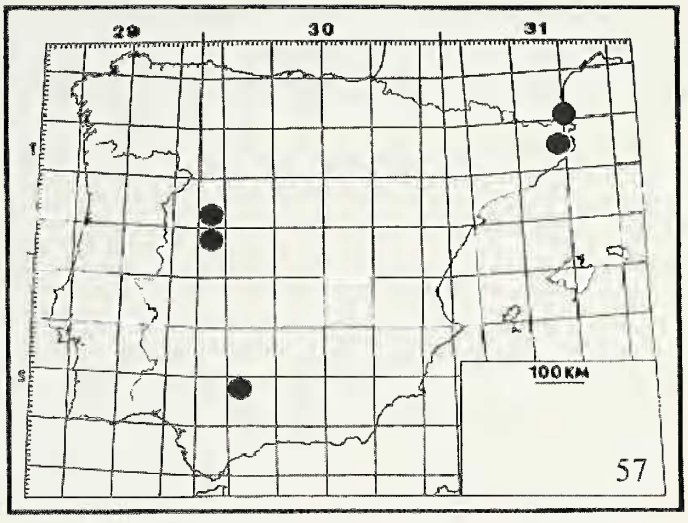


Figure 57.—*Trachelas ibericus*. Distribution on the Iberian Peninsula and in France.

were captured during most of the year, being most frequent in March and absent in Fall. Adult males appear in the second half of the year, being most frequent from August to October (Fig. 56).

Data on the biology of the species are scarce: the animals prefer humus and litter, often looking for shelter behind bark or under stones. The species builds no web, but constructs a silk retreat where the female guards its egg sac.

Distribution.—Recorded from the Western Mediterranean: the northeast, west and south of Spain (Fig. 57), as well as southeast France and northwest Algeria.

Remarks.—The specimens attributed by de Jerardino et al. (1991) and Urones et al. (1990) to a "species close to *Trachelas minor*?" belong to the present species. The citation of *Cetonana laticeps* by Urones et al. (1985) is an error and in reality concerns *T. ibericus* as well.

Cetonana laticeps (Canestrini 1868)

Material examined.—SPAIN: *Gerona*, Bañolas, Pujals dels Caballers, DG86, 1 November 1982, 1♂, J.A. Pérez leg. (CCU).

Diagnosis.—*Cetonana laticeps* differs from the Mediterranean *Trachelas* species by the presence of well sclerotized, sharper, and more pronounced PCT; leg cusps that are present on mt and ta of legs I and II in males as well as females; a flat carapace; AME that are cleary larger than the other eyes; scopulae of erectile bristles in females, which are restricted to ta and basal part of mt I and II; a female epigynum with posterior CO's; and a male palp with a bulbus occupying only part of the ventral side of the cymbium (Grimm & Vilbel 1986). In contrast, the Mediterranean *Trachelas* species have small and often weakly sclerotized PCT; leg cusps on ti, mt and ta of legs I and II, which are present in males only (and only in some species); a carapace that bulges in the cephalic region; subequal eyes; females with dense ventral scopulae consisting of pale erectile bristles on ta, mt and ti I and II; a female epigynum with median or anterior Cos; and a male palpal bulbus occupying the entire ventral side of the cymbium.

Remarks.—The present citation is the only known record of this species for the Iberian Peninsula. As stated above, the citation of *Cetonana laticeps* by Urones et al. (1985) was an error.

DISCUSSION

Most of the old world *Trachelas* species are rare, have a hidden lifestyle and, contrary to a number of new world species who have been reported as inflicting bites to humans (Platnick & Shadab 1974a; Pase 1978), never occur close to houses. As a result, they are seldom collected and, to date, most species were considered to have a limited or even endemic distribution area. The present revision considerably alters this perception. *Trachelas minor* was already known as widespread, occurring from Azerbaijan to West Africa. *Trachelas canariensis*, on the other hand, was considered a Canarian endemic. It is now found to be a widespread species, recorded from equatorial Africa to Spain. Another former Canarian endemic, *T. macrochelis*, is reported in the present study from Algeria and mainland Spain as well. *Trachelas rayi*, mentioned from France and Italy in Platnick (2008), is also reported here from Spain and Algeria, while *T. maculatus*, called a "Black Sea species" by Mikhailov (1987), in reality has a distribution area reaching from Eastern Europe to France and Spain. The only two species that were not found outside their known distribution areas are the northwest African *T. amabilis* and the Iberian endemic *T. validus*. Although apparently considerably more widespread than previously thought, the old world *Trachelas* species avoid Northern latitudes: none of the 16 species mentioned above have been collected North of 50° of latitude. As a matter of fact, the epicentre of the distribution of the eight *Trachelas* species presently known from the Mediterranean is the Iberian Peninsula. In this region, the distribution areas of the widespread *T. minor, T. maculatus*, and *T. canariensis* overlap with those of the Western Mediterranean *T. rayi, T. macrochelis, T. ibericus*, and *T. validus*. The North African *T. amabilis* is the only Mediterranean *Trachelas* which has not yet been collected from the Iberian Peninsula.

Simon (1897: 180) already noted that *Trachelas* is not a very homogenous genus: "Ce genre est fort nombreux et peu homogène, au point qu' on serait tenté de le fractionner si l'on ne tenait compte de tous les intermédiaires gradués qui relient ses formes extrèmes." Morphologically, the Mediterranean *Trachelas* species can be divided into three groups.

The *minor* group is characterized by the absence of a chilum, median eyes further removed from each other than from laterals, maxillae with a shallow oblique transversal depression, male palpal femur with ventral terminal groove, male palpal patella with retrolateral apophysis, absence of RTA, an inflated, pear-shaped bulbus, globular ST1 and ST2 connected to the anteriorly positioned COs by thin, anteriorly coiled ducts. Apart from *T. minor* and *T. canariensis*, the *minor* group encompasses the Afrotropical species *T. pusillus, T. chubbi*, and *T. sylvae*, and most probably also the east Palearctic species *T. alticolus, T. japonicus*, and *T. sinensis* and the Oriental species *T. himalayensis* Biswas 1993, *T. oreophilus* Simon 1906, and *T. quisquiliarum* Simon 1906. *Trachelas costatus* was considered close to *T. maculatus* by Mikhailov (1987: 1586). However, O. Pickard-Cambridge's drawing (1885:Pl. II, fig. 21d) clearly suggests that this species belongs in the *minor* group. The *minor* group further encompasses a number of newly discovered African species (Lyle 2008).

The *rayi* group is characterized by a very broad cephalic part of the carapace in males, a blunt RTA, an oval bulbus with a short apical embolus, a poorly sclerotized epigynum with a medially situated, wide epigynal hood, large anterior piriform ST2, and ST1 consisting of two globular, interconnected lumina. *Trachelas rayi, T. amabilis*, and *T. macrochelis* belong to this group.

The *validus* group is characterized by the presence of leg cusps on at least ti and mt of leg I in males, male legs I and II which are stout and longer than leg IV, a pear-shaped bulbus, an anteriorly situated epigynal hood, and longitudinally oriented lateral ST1 consisting of two lumina interconnected by solenoidally coiled canals. Apart from *T. validus, T. maculatus*, and *T. ibericus*, the Oriental species *T. acuminus* and *T. coreanus* also belong in this group (but see Kim & Lee 2008).

ACKNOWLEDGMENTS

The authors are very grateful to the following curators for the loan of material: Christine Rollard (MNHN), Rudy Jocqué (MRAC), Léon Baert (RBINS), Peter Jäger (SMF), and Peter Schwendinger (MHNG). Many thanks are also due to Rop Bosmans who put his entire collection of Mediterranean *Trachelas* at our disposition and drew our attention to the discovery of *T. ibericus* in Portugal, to Herman De Koninck for the loan of Belgian specimens of *C. laticeps* for comparison, to Martín Ramírez for sending his SEM observations which helped in the interpretation of the genitalic structure of *T. minor*, to Elise-Anne Leguin (MNHN) who was helpful in clarifying collecting locations of specimens from the Simon collection, to Norman Platnick who gave very helpful comments on the authorship of the genus *Trachelas* and to Alexandra Razzhivina who revitalized the first author's Russian. Special thanks are due to Charles Haddad and Robin Lyle who shared their findings concerning African *Trachelas* species, and engaged in fruitful discussions. The referees Charles Haddad and Robert Raven, as well as Ingi Agnarsson, are thanked for detailed and skilled comments that helped improve the manuscript. Joan Botey i Serra is thanked for allowing the first author to collect on his private property in Els Gavarres, Spain.

LITERATURE CITED

Bonaldo, A.B. 2000. Taxonomia da subfamília Corinninae (Araneae, Corinnidae) nas regiões neotropical e neárctica. Iheringia, Série Zoologia 89:3–148.

Bonnet, P. 1959. Bibliographia Araneorum (Analyse méthodique de toute la littérature araéologique jusqu'en 1939). Tome II, 5 partie:4231–5058. Douladoure, Toulouse.

Bosselaers, J. & R. Jocqué. 2000. *Hortipes*, a huge genus of tiny Afrotropical spiders (Araneae, Liocranidae). Bulletin of the American Museum of Natural History 256:1–108.

Bosselaers, J. & R. Jocqué. 2002. Studies in Corinnidae: cladistic analysis of 38 corinnid and liocranid genera, and transfer of Phrurolithinae. Zoologica Scripta 31:241–270.

Braun, R. 1965. Beitrag zu einer Revision der paläarktischen Arten der *Philodromus aureolus*-Gruppe (Arach., Araneae). I. Morphologisch-systematischer Teil. Senckenbergiana biologica 46:369–428.

Cardoso, P. 2000. Portuguese spiders (Araneae): a preliminary checklist. Ekológica, Bratislava 19(3):19–29.

Cardoso, P. 2004. The use of Araehnids (Class Arachnida) in biodiversity evaluation and monitoring of natural areas. Tese Doutoramento. Universidade de Lisboa (Unpublished PhD thesis). 160 pp.

Cardoso, P. 2007. Portugal spider catalogue (v.1.1). Online at http://www.ennor.org/catalogue.php (Last update 15 January 2007)

Chami-Kranon, T., N. Likhitrakarn & C. Wongsawad. 2007. *Utivarachna rama* sp. n., a new speeies of tracheline spiders (Araneae: Corinnidae) from Thailand. Zootaxa 1446:59–68.

Chyzer, C. & L. Kulczyński. 1897. Araneae hungariae, Tomi II.. Editio Academiae Scientiarum Hungarieae, Budapest. Pp. 145–366.

Coddington, J.A. & H.W. Levi. 1991. Systematics and evolution of spiders (Araneae). Annual Review of Ecology and Systematics 22:565–592.

Deeleman-Reinhold, C.L. 2001. Forest Spiders of South East Asia. With a Revision of the Sac and Ground Spiders (Araneae: Clubionidae, Corinnidae, Liocranidae, Gnaphosidae, Prodidomidae and Troehanteriidae). Koninklijke Brill, Leiden. 591 pp.

Denis, J. 1933. Chasses araenologiques dans les Pyrenées-Orientales (Region de Banyuls-sur-Mer et du Vallcspir). Bulletin de la Société d'Histoire Naturelle de Toulouse 65:529–591.

Dippenaar-Schoeman, A.S. & R. Jocqué. 1997. African Spiders: an Identification Manual. ARC-Plant Protection Researeh Institute Handbook, Number 9. Biosystematics Division, National Collection of Araehnida, Pretoria, South Africa. 392 pp.

Grimm, U. & B. Vilbel. 1986. Die Clubionidae Mitteleuropas: Corinninae und Liocraninae (Araehnida, Araneae). Abhandlungen des naturwissenschaftliches Vereins in Hamburg (NF) 27:1–91.

Grismado, C.J. 2004. Una nueva espeeie del género *Meriola* Banks de Argentina (Araneae, Corinnidae, Trachelinae). Revista Ibériea de Aracnología 10:233–235.

Haddad, C.R. 2006. *Spinotrachelas*, a new genus of tracheline sac spiders from South Africa (Araneae: Corinnidae). Afriean Invertebrates 47:85–93.

Haddad, C.R. & R. Lyle. In press. Three new genera of tracheline sac spiders from southern Africa (Araneae: Corinnidae). African Invertebrates.

Jerardino, M., C. Urones & J.L. Fernández. 1991. Datos eeológieos de las arañas epigeas en dos bosques de la región mediterránea. Orsis, Barcelona 6:141–157.

Joequé, R. 1991. A generic revision of the spider family Zodariidae (Araneae). Bulletin of the American Museum of Natural History 201:1–160.

Joequé, R. & A.S. Dippenaar-Schoeman. 2006. Spider Families of the World. Royal Museum for Central Africa, Tervuren, Brussels. 336 pp.

Karsch, F. (1880). Arachnologische Blätter (Decas I). Zeitschrift für die gesammten Naturwissenschaften 53:373–409.

Kim, B.W. & W. Lee. 2008. Notes on four corinnid speeies from Korea with the description of *Trachelas joopili* new species (Arachnida: Araneae: Corinnidae). Journal of Natural History 42:1867–1884.

Koch, L. 1866. Die Arachniden-Familie der Drassiden. Nürnberg, Hefte 1–6:1–304.

Koch, L. 1882. Zoologische Ergebnisse von Exeursionen auf den Balearen. II. Arachniden und Myriapoden. Verhandlungen der kaiserlich-königlichen zoologisch-botanisehen Gesellsehaft in Wien 31:625–678.

Kritseher, E. 1969. Ein Beitrag zur Kenntnis der Araneen-Fauna Italiens. Memorie del Museo Civico di Storia Naturale di Verona 16:271–319.

Ledoux, J.-C. & A. Canard. 1991. Initiation à l'étude systématique des araignées. J.-C. Ledoux, imprimeur & éditeur, Aramon, France. 66 pp.

Lehtinen, P.T. 1967. Classifieation of the cribellate spiders and some allied families, with notes on the evolution of the suborder Araneomorpha. Annales Zoologici Fennici 4:199–468.

Lessert, R. de. 1923. Araignées du sud de l'Afrique. Revue Suisse de Zoologie 30:161–212.

Lyle, R. 2008. A review of the Afrotropieal tracheline sac spiders (Araneae: Corinnidae), with revisions of three genera. M.Sc Dissertation, University of the Free State, Bloemfontein, South Afriea. 366 pp.

Lyle, R. & C.R. Haddad. 2006. A revision of the Afrotropical tracheline sac spider genus *Thysanina* Simon, 1910 (Araneae: Corinnidae). Afriean Invertebrates 47:95–116.

Machado, A. do B. 1937. Aranhas novas para a fauna portuguesa (I). Memorias e Estudos do Museu zoológieo da Universidade de Coimbra, ser.I 107:17.

Melic, A. 2001. Arañas endémicas de la península Ibérica e Islas Baleares (Arachnida: Araneae). Revista Ibériea de Aracnología 4:35–92.

Mikhailov, K.G. 1987. Redescription of spider *Trachelas maculatus* (Aranei, Corinnidae). Zoologicheskii Zhurnal 66:1583–1586.

Morano, E. 2005. Aproximación al eatálogo de Arañas Iberobaleares. Online at http://aracnologia.ennor.org/docs/eorinn.pdf (Last accessed 30 June 2006).

Paik, K.Y. 1991. Korean spiders of the genus *Ceto* (Araneae: Clubionidae). Korean Arachnology 6:263–267.

Pase, H.A. 1978. Bite by the spider *Trachelas volutus* Gertsch (Araneae: Clubionidae). Toxicon 16:96–98.

Penniman, A.J. 1985. Revision of the *britcheri* and *pugnata* groups of *Scotinella* (Arancae, Corinnidae, Phrurolithinae) with a reclassification of phrurolithine spiders. PhD dissertation, The Ohio State University, Columbus, Ohio. Available through University Microfilms International (n° 8510623).

Petrunkevich, A. 1928. Systema aranearum. Transaetions of the Connecticut Academy of Arts and Sciences 29:1–270.

Pickard-Cambridge, O. 1872. General list of the spiders of Palestine and Syria, with descriptions of numerous new species, and characters of two new genera. Proceedings of the Zoological Society of London 1871:212–354.

Pickard-Cambridge, O. 1885. Araneida. Pp. 1–115. *In* Scientific Results of the Second Yarkand Mission. Govcrnment of India, Office of the Superintendent of Government Printing, Calcutta.

Pickard-Cambridge, O. 1911. On new and rare araehnids, noted and observed in 1910. Proeeedings of the Dorset Natural History Field Club 32:33–54.

Platnick, N.I. 1975. A revision of the South Ameriean spider genus *Trachelopachys* (Araneae, Clubionidae). American Museum Novitatcs 2589:1–25.

Platnick, N.I. 2000. The tracheline spider genus *Paccius* (Arancae, Corinnidae) in the Parc National de Marojejy, Madagascar. Fieldiana Zoology (New Series) 97:115–121.

Platnick, N.I. 2008. The World Spider Catalog, Version 8.5. American Museum of Natural History, New York. Online at http://research.amnh.org/entomology/spiders/catalog/.html (Last update of Corinnidae: 30 December 2007).

Platniek, N.I. & C. Ewing. 1995. A revision of thc trachcline spiders (Araneae, Corinnidae) of Southern South America. Amcrican Museum Novitates 3128:1–41.

Platnick, N.I. & M.U. Shadab. 1974a. A revision of the *tranquillus* and *speciosus* groups of the spider genus *Trachelas* (Araneae, Clubionidae) in North and Central America. Amcrican Museum Novitates 2553:1–34.

Platnick, N.I. & M.U. Shadab. 1974b. A revision of the *bispinosus* and *bicolor* groups of the spider genus *Trachelas* (Araneae, Clubionidae) in North and Central America and the West Indies. American Museum Novitates 2560:1–34.

Pons, G.X. & M. Palmer. 1996. Fauna endèmica de les illes Balears. Institut d'Estudis Balèarics, Palma, Mallorca, Spain. 307 pp.

Raven, R.J. 1998. Revision of the Australian genera of the Miturgidae with a preview of their relationships. *In* XIVth International Congress of Arachnology, Abstracts, 65 pp.:31.

Roewer, C.F. 1955. Katalog der Araneen von 1758 bis 1940, bzw. 1954. Institut royal des Sciences naturelles de Belgique, Bruxelles. Band 2:1–1751.

Schmidt, G. 1990. Zur Spinnenfauna der Kanaren, Madeiras und der Azoren. Stuttgarter Beiträge zur Naturkunde (A) 451:1–46.

Simon, E. 1878a. Les Arachnides de France. Tome IV. Roret, Paris. 334 pp.

Simon, E. 1878b. Description de *Trachelas amabilis*, *Liocranum pallidulum*, *majus* et *libanicum*. Annales de la Société Entomologique de France (5) 8:50–52.

Simon, E. 1884. Arachnides observés à Miranda de Ebro au mois d'août 1883. Anales de la Sociedad Española de Historia Natural 13:113–129.

Simon, E. 1892. Histoire Naturelle des Araignées. Tome 1. Roret, Paris. 1084 pp.

Simon, E. 1897. Histoire Naturelle des Araignées. Tome 2. Roret, Paris. 1080 pp.

Simon, E. 1898. Sur quelques Arachnides du Portugal appartenant au Musée de zoologie de l'Académie polytechnique de Porto. Annaes de Sciencias Naturaes de Porto 5:92–102.

Simon, E. 1932. Les Arachnides de France. Tome 6 (partie 4ème). Roret, Paris. Pp. 773–978.

Thorell, T. 1875a. Verzeichniss südrussischer Spinnen. Horae Societatis entomologicae Rossicae 11:39–122.

Thorell, T. 1875b. Descriptions of several European and North African spiders. Kongliga Svenska vetenskaps-akademiens Handlingar 13(5):1–203.

Trotta, A. 2005. Introduzione ai Ragni italiani. Memorie della Societa Entomologica Italiana 83:3–178.

Urones, C., C. Bach & M. Gaju. 1985. Contribución al conocimiento de los Araneae de Sierra Morena Central. Familias: Clubionidae, Sparassidae, Philodromidae y Thomisidae. Mediterránea. Serie de Estudios Biologicos. Alicante 8:47–58.

Urones, C., M. Jerardino & J.L. Fernández. 1990. Estudio ecológico de las arañas epigeas (*Araneae*) en un encinar adehesado de *Quercus ilex* subsp. ballota (Desf.) Samp. (provincia de Salamanca, España). Boletín de la Asociación española de Entomología 14:185–197.

von Engelhardt, V. 1910. Beiträge zur Kenntnis der weiblichen Copulationsorgane einiger Spinnen. Zeitschtift für wissenschaftliche Zoologie 96:32–117.

Wunderlich, J. 1987. Die Spinnen der Kanarischen Inseln und Madeiras. Adaptive Radiation, Biogeographie, Revisionen und Neubeschreibungen. Triops Verlag, Langen, Germany. 435 pp.

Wunderlich, J. 1992. The Spider fauna of the Macaronesian Islands. Taxonomy, Ecology, Biogeography and Evolution. Beiträge zur Araneologie 1 (1991). Jörg Wunderlich Publishing House, Straubenhardt, Germany. 619 pp.

Manuscript received 24 March 2008, revised 23 August 2008.